THIS WEEK'S National Petroleum NEWS

Coming Meetings

Illinois Petroleum Marketers Association, Peoria, Ill., Feb. 18, 19.

Ohio Petroleum Marketers Association, Neil House, Columbus, O., Feb. 24, 25, 26.

American Petroleum Institute, division of marketing, Stevens Hotel, Chicago, March 4. (Changed from May 13 and 14, Tulsa).

Western Petroleum Refiners Association, Elms Hotel, Excelsior Springs, Mo., March 10, 11, 12.

Michigan Oil Men's Association, Hotel Statler, Detroit, March 11, 12, 13.

Oil Equipment & Engineering Exposition, Los Angeles, March 16 to 22.

Ohio Oil & Gas Men's Association, Deshler-Wallick Hotel, Columbus, O., March 17, 18.

American Association of Petroleum Geologists, Gunter Hotel, San Antonio, Texas, March 19, 20 and 21.

Independent Oil Men of America, Chicago, March 23, 24. (Hotel not yet selected. Annual business meeting and election of officers).

American Chemical Society, Indianapolis, Ind., March 30 to April 3.

American Oil Burner Association, Ben Franklin Hotel, Philadelphia, Pa., April 13 to 18.

American Petroleum Institute, division of refining, semi-annual meeting, Hotel Statler, St. Louis, Apr. 15, 16.

National Petroleum Association, Hotel Cleveland, Cleveland, O., Apr. 23, 24.

Natural Gasoline Association of America, Mayo Hotel, Tulsa, May 19, 20, 21.

American Petroleum Institute, Division of Production, Baker Hotel, Dallas, Tex., June 3, 4.

National Petroleum News

Vol. 23 **No. 7**

Published by

The National Petroleum Publishing Co.
1213 W. Third St., Cleveland, O.
Tel. CHerry 7672

Branch Offices:

Tulsa, 904 World Bldg., Tel. 3-7132.
New York, 342 Madison Ave., Tel. Vanderbilt 3-3950 and 3-3951.
Houston, 2420 Gulf Bldg., Tel. Fairfax 6286.
Chicago, 35 E. Wacker Drive, Tel. State 4141.

Subscription rate $3.50 per year, U. S., Mexico and Canada; $5 Foreign countries. Current copies 10 cents; for back issues more than two months old 25 cents per copy.

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Member Audit Bureau of Circulations and Associated Business Papers.

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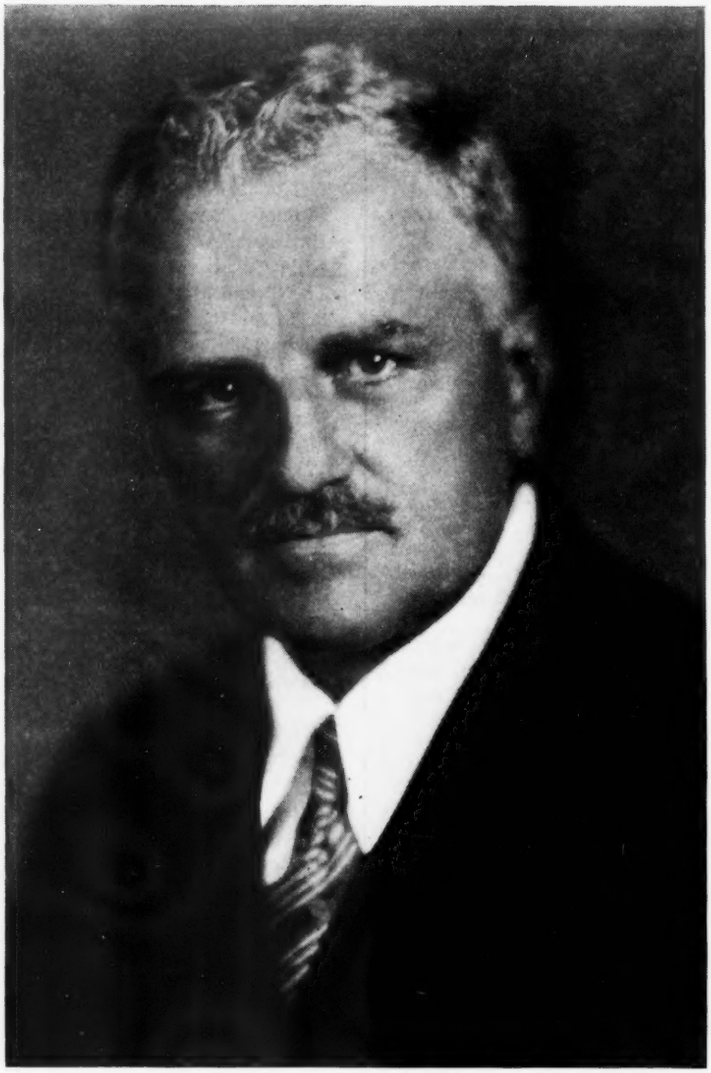


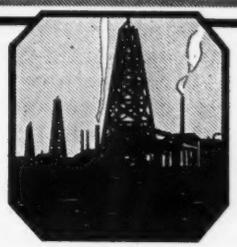
WALTER MILLER, vice-president of the Continental Oil Co. in charge of refining, began his oil industry service in 1909 as yield clerk in the paraffin and lubricating department of the Tide Water Oil Co., at Bayonne, N. J. Through several promotions he became process superintendent, which position he held when he resigned in 1917 to become general superintendent of refining for Pierce Oil Corp.

Late in the same year Mr. Miller became manufacturing manager for Cosden & Co. and two years later entered consulting work at Tulsa. On Jan. 1, 1922, he was placed in charge of manufacturing for the Marland Oil Co., which position he held continuously for Marland and its successor, Continental.

Mr. Miller is a member of the American Petroleum Institute, American Chemical Society, American Institute of Mining and Metallurgical Engineers, American Society for Testing Materials and the American Society of Mechanical Engineers. He has contributed papers on refining problems to practically all of these organizations and has been active in much of their committee work.

NATIONAL PETROLEUM NEWS

Published at
1213 W. Third St.
Cleveland



Branch Offices
Tulsa, New York, Houston,
Chicago

Vol. 23 CLEVELAND, February 18, 1931 No. 7

Revision of Railroad Rates on Petroleum Ordered by Federal Commission

By A. E. Heiss
N. P. N. WASHINGTON REPRESENTATIVE

By Telegraph
WASHINGTON, Feb. 16

THE largest, if not the most important, revision of railroad freight rates on petroleum products ever devised was ordered today by the Interstate Commerce Commission.

Within four months the railroads are to revamp their rates on oil within the southwest, within the southeast and within that part of the northeast east of the Indiana-Illinois state line.

The commission allowed the railroads 120 days from the date of service of the decision to overhaul their rates. The chances are all against the roads being able to accomplish this herculean task within the time allowed.

The order of the commission results from the Hoch-Smith resolution passed by Congress some two or three years ago, which ordered the commission to investigate the general railroad rate structure of the country to see if some relief could not be granted farmers by lowering rail rates on farm products, and compensating the roads by increases in rates on products of other industries.

The commission held hearings over the country, at which the oil company traffic managers presented evidence to show the roads were then losing oil traffic to the pipelines and to trucks.

The resulting order of the commission is not regarded as leading to a general advance in rates on oil products. It is looked upon, however, as tending to throw into confusion the relations between various refining and marketing groups; where, in the past, rate cases extending over years have been necessary to bring about the present balance in rates between groups.

Where rate increases have been ordered for relatively short hauls, it is believed the tendency will be for a greater volume of this traffic to leave the railroads for truck haul.

The revision being ordered came in two decisions from the regulating body, one pertaining to the southwest and the other to the northeast and southeast.

The first contemplates the making over, not only of interstate rates in the southwest, but also the rates made by the state commissions in southern Missouri, Kansas, Oklahoma, Arkansas, Texas and Louisiana, for hauls wholly within those states.

In their boldest outlines, the two decisions require the railroads to make their rates in the southeast and northeast on the basis of 32.5 per cent of the first class rates prescribed by the commission in the so-called eastern and southern class rate investigations.

The eastern class rates are not yet in effect, but they have been ordered and are to be used in making the new rates, nevertheless. In the southwest the new rates are to be made in accordance with a scale averaging about 23 per cent of the first class rates prescribed in the southwestern revision, which went into partial effect July 14, 1928. Rates on low grade products are to be 80 per cent of those on gasoline.

Rates to the Mississippi river gateways (St. Louis being the most important in petroleum shipments) from the southwest to the northeast are to be held down to the maximum rates prescribed in the Mid-Continent rate case of 1925, which went into effect as far east as the Illinois-Indiana line in 1927.

Into the southeast from the southwest, the rates to the Mississippi gateways are to be held down by the rates to the crossings resulting from the Mid-Continent case.

The most typical case of that character is the one from Groups One, Two and Three in Oklahoma to Memphis, which is to be 33 cents a hundred pounds. Literally millions of other rates into the southeast from the southwest will revolve around that base figure.

Expressions from oil company traffic managers received by the writer over the telephone after the Interstate Commerce Commission made its announcement, were to the effect that the revision would tend to drive more of the traffic in petroleum products from the railroads to pipelines and tank trucks.

Members of the commission themselves, in their report, expressed the opinion the revision would not do the railroads any good. Commissioner Eastman, a so-called radical, expressed the belief that the revision purporting to give the railroads higher rates in some places and the shippers higher rates in others, was no more than a "benevolent gesture."

"If the carriers wish to secure as much revenue as possible from this traffic," said Commissioner Eastman, "they will do well to disregard these maximum rates and devote their attention to the existing competition and, even still more, to that which can be foreseen in the near future."

It was his idea that no level of rates higher than 30 per cent of the first class rates in the southeast and the northeast could be supported. Anything higher than that would be too generous to the carriers, he said. Inasmuch as he made the rates in the southeast and northeast that are to be used in measuring the level of the petroleum rates, he probably knows more about the matter than any of his colleagues.

The members of the Interstate Commerce Commission were disagreed as to what should be done in the matter on which they reported today. They took up the subject in obedience to the mandate of Congress to remove burdens from products of agriculture and to put them on other traffic.

Commissioner Porter, an Iowa democrat, chided his colleagues because they had not increased the rates so as to enable the railroads to recoup some of the losses they are expected to sustain when reduced rates on grain go into effect about June 1. They have been ordered for April 1, but they cannot be made effective so early as that.

The best unofficial judgment is that the revision will cause neither an increase or decrease in the revenues of the carriers as a whole, but that there will be transfers in revenue of considerable magnitude. The conclusion that the increases granted and reductions ordered will just about cancel each other is based on the assumption that the railroads will be able to hold all the petroleum tonnage they have been hauling in the last two years. Another assumption is that the state commissions regulating rates within states will bring state rates to the level of interstate rates.

Railroads in Texas, for example, by reason of the revision in the southwest, are expected to lose about $2,500,000. Railroads in other parts of the southwest are expected to have their revenues increased by about that sum, so that the net effect will be a holding of revenues to about their present level, assuming that the revision does not drive any greater volume of petroleum products now moving by rail to the new gasoline pipelines and to trucks.

This large loss of revenues in Texas will be due to the grading of oil product rates in that state. At present the rates made by the Texas Railroad Commission are blanketed at and beyond 120 miles, in joint hauls, with a rate of 39.5 cents per hundredweight. The single line hauls are blanketed at about 95 miles.

Grading the rates in this state, in accordance with the scale prescribed in the report of the Interstate Commerce Commission, is expected to produce the cut in revenues previously mentioned. That scale is estimated to average 23 per cent of the first class rates, although some of the individual rates will be as high as 25 per cent and some as low as 21 per cent. They will be held down by the rates to the Mississippi gateways into the southeast and by the rates prescribed in the Mid-Continent case, into northeastern territory.

A vigorous protest against putting into effect the rates prescribed from the report is expected from Indiana. From the southwest, rates to all groups in that state are to be increased three cents per hundred pounds, giving Indiana rate humps greater than those which now prevail

Texas Commission's Order Based on U. S. Ruling

(By Telegraph)

HOUSTON, Feb. 16—The Railroad Commission of Texas Feb. 16 ordered sweeping reductions in intrastate rates on refined petroleum products after receiving information of similar interstate orders issued at Washington.

The reduction is to be made effective before June 16 and will effect savings on hauls up to 460 miles.

Special rates which had been previously inaugurated to meet truck and pipeline competition were not disturbed.

For a 50-mile shipment, the new rate will be 15 cents per hundred pounds against the old single line rate of 26½ cents, and the joint line rate of 31½ cents. A 100-mile shipment will take a 20-cent rate, compared with the present 35-cent single line and 39½-cent joint line charge.

Virtually all refined products are included. Casinghead gasoline was not included, but will be the subject of a hearing applying to it and related products before the state railroad commission at its term beginning March 10.

The commission refused application of Texas City to be placed in the Houston rate group.

in comparison with Chicago.

For example, at the points in Indiana where the rate is now 39 cents per hundred, which is three cents higher than the rate to Chicago, the new rate will be 42 cents. That will deprive that state of some of the benefit it obtained from the decision in the Indiana state Chamber of Commerce case. Prior to that decision, Indiana had rate humps ranging from 6.5 to 10.5 cents. When that case was decided, the nearest Indiana group was made 3 cents over Chicago.

If the railroads, in the Mid-Continent rate case, had taken all the commission said they might have in the way of advanced rates, the rate to Chicago would have gone up to 38 cents, or only one cent less than the nearest Indiana group. But the carriers upon the insistence of the Mid-Continent railroads, which feared the loss of traffic from Mid-Continent refineries, held the rate from Tulsa, in the governing origin group, to Chicago at 36 cents.

The Illinois destination rates were not before the commission in this Hoch-Smith proceeding, upon which the Interstate Commerce Commission's report of today was based. Therefore nothing could be done with them in connection with the rates to territory east of the Illinois-Indiana line.

A New Oil Magazine

By National Petroleum News

A NEW oil paper is being issued by NATIONAL PETROLEUM NEWS. The paper is actually an old one, having been published for the past four years. But it is new for NATIONAL PETROLEUM NEWS. It was bought last November from the Chilton Class Journal Co. of Philadelphia, the largest automobile paper publishing house in the world, and was known as Oil Field Engineering and, for the last two months of its existence under that management, it was known as Oil.

The paper was devoted to engineering in the production division of the oil industry. It has a most excellent list of subscribers in that division, exclusively among the engineers, production executives and superintendents of the representative companies producing nearly all of the crude oil of the country.

NATIONAL PETROLEUM NEWS bought this paper because we found that the technologic development in that division of the industry had become so great that no paper had the capacity physically to handle anywhere near all of the material that is being written. So, to enable the oil industry to have this valuable technologic material in the form that it requires, NATIONAL PETROLEUM NEWS bought this other paper.

The name of this journal—new to NATIONAL PETROLEUM NEWS—is INTERNATIONAL PETROLEUM TECHNOLOGY. It is a monthly, edited by the technical men of the staff of NATIONAL PETROLEUM NEWS and sold at the present time at the rate of $2 a year. It is offered to all in the oil industry who may be interested. It is being operated separately from NATIONAL PETROLEUM NEWS.

It will supplement—not supplant—NATIONAL PETROLEUM NEWS. The editorial material therein will be that which neither NATIONAL PETROLEUM NEWS nor other oil papers have had room to print.

NATIONAL PETROLEUM NEWS will continue, as now, a NEWSpaper, carrying latest developments in all branches of the industry, many of the news features coming in by telegraph each week. This news will be continued to be written in plain language, short and to the point for the widest possible interest in the industry.

We have long believed that EVERY oil man, no matter in what part of the industry he may be engaged, should keep in reasonably close touch with what is going on in the industry. We believe he will be a better oil man for so doing, and the big executives of the industry, we know, think the same way.

For some eight years now NATIONAL PETROLEUM NEWS, through an allied organization, has been giving the industry daily detailed market reports and important news through the Oilgram, mailed simultaneously every day, except Friday, from four of its offices, Cleveland, New York, Chicago and Tulsa. International Petroleum Technology will be of the same serviceability only it will cover one division of the industry and will be mailed monthly.

The first three issues of International Petroleum Technology will not carry any advertising. No advertising will be accepted for it until it has, by its editorial excellence, won not only the approval, but the *ENTHUSIASTIC* approval of its readers.

Should you wish a sample copy of this new paper we will be glad to mail you one.

THE NATIONAL PETROLEUM NEWS
Warren C. Platt, Publisher

National Petroleum Association Spring Program Announced

CLEVELAND, Feb. 16

A STRONG group of speakers has been assembled by Fayette B. Dow, general counsel for the National Petroleum Association, to address the semi-annual meeting of the association at Cleveland, April 23 and 24. Meetings are to be held at the Cleveland Hotel.

The railroad situation will be discussed from both the railroad and shipper standpoint. Julien L. Eysmans, vice president of the Pennsylvania railroad in charge of traffic, will speak on "The Railroads and their Competitors. The shipper point of view will be given by Willis Crane, traffic attorney for the association.

J. Elmer Thomas, chairman of the Federal Oil Conservation Board's Committee on Economics, will speak on the current economic situation. By the time of the meeting it will be possible to show how nearly the refining industry has approximated the recommendations made last fall by the board's committee and the American Petroleum Institute committee.

Problems common to the automotive and oil industries will be discussed by H. L. Horning, president of the Waukesha Motor Co., Waukesha, Wis. Mr. Horning has been active in the development of a standard test engine for testing anti-knock qualities of gasolines.

"The Anti-Knock Rating of Gasolines" will be discussed by Earl Bartholomew, director of the engineering laboratory of the Ethyl Gasoline Corp.

Gasoline specification problems will be aired in a paper on "Problems Involved in the Government's Purchases of Petroleum Products" by Dr. H. C. Dickinson, of the U. S. Bureau of Standards. An advance synopsis of Dr. Dickinson's paper will be furnished those attending the meeting to allow previous study and preparation for full discussion.

A study of marketing conditions will be presented by L. V. Nicholas of Chicago, former president of the National Petroleum Marketers' Association.

E. M. Lyons, of the Tionia Refining Co., president of the National Petroleum Association, will deliver his semi-annual address on oil industry conditions and on the activities of the association.

Fred G. Clark, of the Fred G. Clark Co., Cleveland, is in charge of entertainment at the fellowship supper, which is always a delightful feature of N. P. A. meetings. As usual there will be no speeches or professional entertainers.

Revised Passenger Car Chart Ready Soon

THE 1931 Passenger Car Capacity Chart, printed on cardboard, is just going to press with late revisions and corrections from the first draft published in NATIONAL PETROLEUM NEWS Feb. 4.

Among the corrections are transposition of S.A.E. winter and summer oil specifications on Kissel and Packard cars; correction of Cadillac transmission and differential capacities to six pints each; inclusion of 1931 model Elcars and Windsors; and some revisions on Cord, Ford, Marmon, Peerless, and Pierce Arrow.

Reprints of the chart on 6-ply cardboard, printed in one color and black, will be available, postpaid, at 50 cents a copy for 1 to 10 copies; at 40 cents a copy for 11 to 20 copies, and 37½ cents a copy for 21 to 50 copies. Cash or check must accompany order.

Special prices will be submitted on request for larger quantities or charts that bear the imprint of the individual oil company.

Chicago Q. D. A. Revised

CHICAGO, Feb. 17.—Standard Oil Co. of Indiana revised its quantity discount agreement on gasoline in Chicago to 4 cents per gallon discount off posted service station price for purchases totaling over 500 gallons or more per month.

This eliminates the 5 cent discount which was formerly given on purchases totaling 1000 gallons or more. The 4-cent discount had been allowed on purchases of 500 to 999 gallons per month.

Bartlesville Engineers Elect Officers

BARTLESVILLE, Okla., Feb. 5.—A. D. Terrell, National Zinc Co., was elected president of the Bartlesville Engineers Club at a recent meeting here, to serve the coming year. He succeeds K. E. Beall, Phillips Petroleum Co.

Other officers elected include: James Porter, Jr., Indian Territory Illuminating Oil Co.; P. R. Chamberlain, Dewey Cement Co.; and E. G. Brua, Empire Oil & Refining Co., vice presidents, succeeding F. C. Lichtenheld, R. C. Hauber, and B. F. Buff; and L. T. Gibbs, Phillips Petroleum Co., secretary and treasurer, succeeding W. S. Morris, I.T.I.O. Co.

Ohio Tankcar Prices Cut

CLEVELAND—On Feb. 17 Standard Oil Co. of Ohio reduced its tank car prices of gasoline 0.50-cent through Ohio, making new price 8 cents per gallon, for delivery at any point in Ohio.

TULSA—Kendrick Oil Co., refined oil marketers, announce that Fred Norton has been appointed sales manager.

JACKSON, Miss.—Standard Oil Co. of Kentucky has bought the physical assets of the Mutual Co. of Jackson.

Sinclair Posts 67 Cents for 50,000 Barrels Of Oklahoma City Crude

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, Feb. 15

FOLLOWING issuance of an order Feb. 10 by the Oklahoma corporation commission increasing the amount of crude oil that may be taken from the Oklahoma City field—storm center of the fight to break the oil companies' proration program—Sinclair Refining Co., Feb. 13, posted a price of 67 cents per barrel for this oil and offered to take 50,000 barrels daily.

This is a reduction of 34 to 37 cents a barrel for the crude from this field, which has taken the same price range as crudes from other fields in Oklahoma and Kansas, from 65 to $1.07 a barrel depending on the gravity.

Sinclair officials say that 50,000 barrels daily is the total amount they desire to take and that it includes their own production. Under the new order of the commission they are allowed to produce about 8000 barrels daily from their own properties.

Latest information available is to the effect that offers to sell oil at this price are coming in to the Sinclair company to such an extent as to make it certain that a considerable volume of oil will be available at that price. No connections to producing properties have yet been made by the Sinclair company.

No other oil company, at the end of the week, had met the Sinclair price.

In January, operating under the old order of the commission, total shipments from the Oklahoma City field, pipeline and tank car, averaged 89,056 barrels per day. The new order, signed late Feb. 10, permits taking from the wells 125,000 barrels, or 6¼ per cent of the two million barrel potential, which the commission decided was more nearly a true figure for its potential than the better than six million barrels indicated by a four-hour gauge taken on most of the wells. The limit previously set by the commission was 90,000 barrels daily; the increase is 35,000 barrels.

Assuming that Sinclair is able to get all of the increase at the price it has offered, it would still be something shy of the amount of oil from the field it wants. But it will not be able to get all the increase. Other pipeline companies indicate that they are willing to run more oil because of the seasonal increase in demand. Only the Magnolia Petroleum Co. has reduced. It ran an average of 10,240 barrels in January and it has reduced to 5000 barrels daily, at least as a temporary measure and possibly for a long time; for Magnolia is arranging to put a pipeline into the new East Texas area.

JUST how much greater allowance the Oklahoma City field will need to fill the Sinclair order is difficult to determine. That the company will be offered plenty of oil at the 67-cent price is practically certain. Many companies which have drilled wells on small parcels of land, some financed by sale of units to the public, are in dire need of money and will be only too glad to market more oil at Sinclair's price. One of them, Century Petroleum Co., went under receivership the past week.

The situation, therefore, is this: There is a willing buyer and willing sellers in the field; the allowable production must be increased to enable Sinclair to get all the oil it offers to buy; it is offering a price 34 to 37 cents a barrel below what is paid by other major buyers.

If the commission raises the allowable, the price will have to be met by the other companies. If it refuses to permit greater production, then Sinclair is in ideal position to show a court that proration is held to maintain prices, which is the contention that opponents of proration have made right along.

THE history of the fight in Oklahoma must be kept in mind. Champlin Refining Co. has been a leader in the battle to break proration. It has lost its case before the corporation commission and in the federal court. The Julian Oil & Royalties Co. lost on the same issue in the state supreme court. The lines have held fast thus far.

Then the protestants took another method of attack and sought an increase in allowable production in the Oklahoma City field. Leaders among them hoped for about five per cent on the potential of six million barrels plus. The commission, however, cut the potential to one-third and gave a higher rate than had been asked for; just as a county assessor may make the tax rate look good by lowering it, but gets in just as much money by hiking the valuation. There is considerable dissatisfaction with the new order of the commission.

Failing to get the allowable increased to where some of the buyers wanted it, Sinclair executed its price maneuver thus far, sending notice of its offer to buy crude at 67 cents a barrel by mail to all the producers in the field. Sinclair offers to take the oil ratably from the

Status of Production, Under Proration, by Companies, In the Oklahoma City Field

(Figures in Barrels)

	Wells	Potential	Net Tentative Allowable Production	Actual January Production	FEB. 1, 1931 Production Over Allowable	Production Under Allowable
Acme Oil Co.	1	69,120.00	6,220.80	16,248.00	14,827.00	.....
Anderson Prichard Oil Co.	21	234,996.80	39,990.66	45,709.80	19,861.89	14,142.75
Blackstock et al	3	44,508.00	10,616.84	2,462.00	1,690.92	7,793.76
Blackwell Oil & Gas Co.	2	50,070.00	1,221.48	7,783.00	18,865.52	.....
British American Oil Co.	9	337,841.98	97,238.39	72,549.75	39,175.96	20,323.60
California Operating Co.	1	6,552.00	.....	3,005.00	3,005.00	.....
Capitol Prod. & Refg. Co.	1	41,708.00	.....	6,241.00	27,511.00	.....
Century Petroleum Corp.	5	120,868.00	9,745.16	17,264.00	86,437.84	.....
Champlin Refining Co.	2	9,072.00	2,630.88	.....	11,832.12	.....
Chatham Oil Co.	2	112,191.00	38,892.45	47,732.71	19,318.00	10,477.74
Coline Oil Co.	35	958,031.60	59,543.34	31,568.45	20,736.01	26,879.17
Continental Oil Co.	4	22,655.60	7,173.34	8,401.48	5,169.45	1,071.31
Cromwell-Franklin Oil Co.	31	310,554.14	94,440.16	98,096.19	22,439.79	6,822.05
Denver Prod. & Refg. Co.	4	136,139.96	11,112.58	12,608.48	8,443.01	1,158.11
Dengail Oil & Gas Co.	1	53,128.00	.....	5,346.00	5,346.00	.....
Empire Oil Co.	2	6,348.00	43.50	2,493.00	3,338.50	.....
Wirt Franklin Pet. Corp.	39	305,859.16	140,778.43	82,660.96	21,628.83	62,230.30
Government Petroleum Corp.	1	1,856.00	538.24	.....	214.76	.....
Hall & Briscoe	2	26,360.00	4,248.79	165,228.00	254,307.21	.....
I. T. I. O.	296	1,703,612.32	645,684.28	574,342.61	136,638.35	75,804.69
Jones Bros. Drlg. Co.	2	54,478.00	5,289.08	4,805.70	12,080.00	483.38
C. C. Julian Oil Co.	3	23,232.00	17,387.56	1,726.48	8,413.44	13,933.52
Kedberg Oil Co.	1	3,672.00	1,064.88	1,681.00	616.12	.....
Mabee et al	1	59,904.00	27,356.16	27,535.00	178.84	.....
Marco Oil & Royalty Co.	1	1,248.00	364.00	.....	31,240.00	.....
Mid-Kansas Oil & Gas Co.	12	24,889.46	7,379.46	7,263.46	470.00	109.00
Mid-Texas Pet. Corp.	1	6,160.00	1,799.00	.....	4,703.00	.....
Minnehoma Oil Co.	1	65,271.12	18,928.62	18,371.10	.....	557.62
R. A. McArthur Oil Co.	1	54,000.00	.....	17,435.87	17,435.87	.....
Oils Incorporated	4	121,463.24	17,630.54	39,596.22	23,357.68	.....
Phillips Pet. Co.	21	716,270.82	221,880.92	135,389.39	60,992.63	135,691.16
Plains Petroleum Corp.	2	43,720.00	24,711.60	20,578.68	608.90	4,741.82
Prairie Oil & Gas Co.	15	52,980.00	14,063.25	12,195.00	1,306.00	251.25
Reynolds & Unruh	1	24,004.92	6,961.43	6,965.82	4.39	.....
Russell Pet. Corp.	1	16,440.00	2,625.00	.....	1,599.00	.....
Scott & Company	1	.....	.....	2,256.48	2,256.48	.....
J. C. Shaffer Inc.	7	71,322.80	19,747.14	20,746.77	1,082.87	11.24
Shell Petroleum Corp.	8	13,763.16	9,351.11	2,399.78	88.62	6,749.95
Sinclair Oil & Gas Co.	55	434,854.90	132,166.33	204,358.92	130,594.57	4,694.98
Skelly Oil Co.	21	288,710.60	167,248.83	115,730.98	71,624.31	37,473.18
T. B. Slick Estate	77	929,020.58	657,036.71	458,566.06	35,999.80	224,216.32
Sunray Oil Co.	4	185,022.00	6,146.24	2,750.00	18,795.76	.....
Westgate Oil Co.	1	19,706.94	.....	6,568.98	6,568.98	.....
Wrightsmith Oil Co.	2	10,674.00	8,094.30	1,890.00	.....	6,204.30
Morgan Petroleum Co.	1	24,216.00	7,063.00	5,800.00	112,536.00	.....
Don Leon Oil Co.	1	53,517.00	2,291.22	19,477.00	52,690.78	.....
	707	7,742,014.10	2,546,705.72	2,333,829.12	1,316,031.40	661,820.10

producers, thus conforming to the central principle of proration upheld by the courts and insisted upon vigorously by the commission.

The question thus appears to be closely tied up with price. Will the commission be influenced by the fact that the price is below the market? In its latest order on Oklahoma City, it touched upon price in this language:

". . . . The price of crude petroleum . . . .is inseparably related to the question of economic waste. It is the demand for crude petroleum at a price which will permit the operation of wells which keeps men employed and wells operating. Without both a market demand and a price which will pay expenses, wells cannot be kept going or petroleum pumping through the pipelines, to the trade. . . ."

Sinclair Refining Co. said in its official statement:

"It is a matter of common knowledge that flush fields such as Oklahoma City can produce at far lower cost than settled and semi-flush fields and it is believed that this fact must be recognized in arriving at a fair price for Oklahoma City oil. The company, it was stated, does not desire to disturb the price received by stripper wells with higher cost for lifting and hopes that any disturbance of stripper well prices will be avoided.

"In fields outside of Oklahoma, it was asserted, oil is selling in large volume below the Oklahoma City price. Furthermore, a considerable amount of Oklahoma City oil has been for some time sold for 67 cents per barrel. Large offers have been made below the figure. In certain cases, contracts ostensibly at the posted price are subject to deductions which materially reduce the actual price to the purchaser.

"The attempt, it was pointed out, to maintain a higher price in Oklahoma City than competition justifies has resulted in a decline of its market from 165,000 to as low as 80,000 barrels daily. Takings from the field have been progressively reduced by purchasers who sought other and cheaper sources of supply with the result that at this time thousands of barrels of oil are moving through Oklahoma to what are normally Oklahoma's markets.

"This loss is, of course, in addition to oil moving to the Atlantic Coast by water from Gulf ports. Another factor is the large increase in withdrawals from storage which inevitably cuts back the demand for current production. Enlargement of Oklahoma's market for oil cannot fail to increase employment, buying power and contribute to the prosperity of the state as a whole."

H. F. Sinclair, chairman of the board of the Sinclair Consolidated Oil Corp., has been in Tulsa off and on since early in the year and is giving the crude oil situation his personal attention. It has been years since he spent as much time continuously in the Mid-Continent.

The present order of the corporation commission runs to March 2, when the commission will hear testimony with respect to any change in conditions.

The accompanying tabulation covers the Oklahoma City field as of Feb. 1. The potential production of each company is given, its tentative allowable for January, the "over" and "under" account. This latter item is in seeming conflict as it appears here. The tabulation given is a summary of Umpire Bradford's report which gave these "under" and "over" accounts by leases on a cumulative basis. The proration rules compel the adjustment of these accounts by leases and not by company totals from the whole field.

The formula used by the umpire in figuring the allowable production for the last 18 days of February—the time remaining in the month after the new order was issued—is as follows: Original potential (shown in the table as "potential") divided by 3 times 18 times .04166.

Railroads Ask Aid of I. C. C. in Fight Against Pipelines

By A. E. Heiss

N. P. N. WASHINGTON REPRESENTATIVE

WASHINGTON, Feb. 14 AS AN aid to them in their fight against the oil industry's pipelines, the railroads have asked Congress to direct the Interstate Commerce Commission to investigate transportation of all sorts instead of, as now, merely motor transportation.

They have had Senator Fess of Ohio and Representative Parker of New York offer identical resolutions to widen its investigation, now covering only the motor vehicle so as to embrace transportation by pipelines, waterways and airplanes. The resolutions have been referred to the committees on interstate commerce of the two bodies.

The railroad regulating body, under the terms of the resolution is "to inquire whether, in the public interest, any of them, engaged in interstate commerce, should be regulated, or further regulated, whether existing governmental regulation of interstate commerce should be modified or amended, and to submit a report to the Congress in December, containing its recommendations thereon, together with a finding as to the effect of motor, water, air and pipeline transportation on railroad revenues and with drafts of appropriate bills to carry into effect such recommendations as it may make in the premises."

An implication carried in the program of the Association of Railroad Executives adopted at New York on Nov. 20, that the railroads would make a direct request for legislation making the commodities clause of the interstate commerce law apply to pipelines is shown by the Fess-Parker resolution to have been unwarranted or to have been abandoned.

As explained to the public by C. C. Paulding, vice president of the New York Central, the railroads would ask Congress to subject the pipelines to burdens, in the matter of carrying commodities, the law laid upon the railroads.

The railroads prepared the resolution. It came from the office of Alfred P. Thom, general counsel of the Association of Railway Executives. Representative Parker is chairman of the House committee on interstate and foreign commerce. Senator Couzens of Michigan is chairman of the corresponding Senate committee but Senator Fess is a member of that body.

Early consideration and adoption of the Fess-Parker resolution is expected. For the time being it becomes the program of the railroads. If it is adopted before March 4, the railroads, throughout the summer and fall, can try to create sentiment in behalf of their proposition that all forms of transportation should be hampered to the extent they are hampered by governmental regulations.

WHEN the program was adopted by the executives (see NATIONAL PETROLEUM NEWS, Dec. 3, p. 19) the thought was that the railroads would not undertake to procure legislation at this the short session of Congress but would use the time between the adoption of the program and the assembling of the next Congress, in December, in the drafting of appropriate legislative proposals and the assembling of facts to show why it should be passed.

Now, however, the proposal is that the Interstate Commerce Commission shall gather facts about the competition of forms of transportation not covered by the inquiry into motor competition that it has been carrying on for more than a year. It is not only that that body shall gather facts but also make recommendation accompanied by drafts of appropriate legislation to carry out the recommendations.

UNDER the legislation passed in the transportation act of 1920, the railroads have the right to regard the Interstate Commerce Commission as the agency of the government designated by Congress to be their particular friend and guide. No such duty has been imposed upon it in respect of other forms of transportation beyond the declaration in one statute that it shall foster both railroad and water transportation. Motors and pipelines are outside that fostering pale.

To such an extent is the Fess-Parker resolution a substitute for the implied backing of proposals to make the commodities clause apply to pipelines that the railroads have agreed that they would not have anything to do with the Hoch bill, H. R. 16695. That is the one subjecting pipelines to the commodities clause.

The determination on that point was reached in connection with a question as to what part the railroads should take in the hearing on the Hoch bill scheduled for Feb. 17. The answer to the question was that the independent oil men, in whose interest Hoch intended to act, should be allowed to have the hearing all to themselves and such pipeline men as might desire to appear, if any.

The "if any" was put in on account of the fact that, even if amended to apply to all common carriers, there was a big

question whether the commodities clause would accomplish anything. Therefore it was a question whether any well advised pipeline man would appear at the hearing to make a serious objection to the bill.

By deferring the time when the railroads must stand for something definite in supposed compliance with the program adopted by their executives last November they brought time to work on their side. Between March, the time of the adjournment, and December, the time of the reconvening of Congress the rail carriers can put into the record many things tending to convince Congress that it should add hobbles to other forms of transportation so as to make the competition easier for the most regulated form of transportation.

In addition it is possible that the federal court for the northern district of Illinois, eastern division, at Chicago, will make a decision in equity No. 10152, United States of America vs. Elgin, Joliet & Eastern. That is the case in which the government is undertaking to persuade the courts that the commodities clause means more than it seems to say.

It seems to say that no railroad company may transport commodities of its own production, except timber, or in which it has an interest, direct or indirect.

The government, in the Elgin, Joliet & Eastern suit, is trying to persuade the courts that because that railroad transports commodities produced by the U. S. Steel Corp. and its subsidiaries, the railroad company has an interest in those commodities because its stock is owned by the Illinois Steel Co., the stock of which is controlled by the steel corporation. Heretofore the commodities clause has been construed as forbidding the transportation of commodities produced by railroads.

Construed as the government, after 20 odd years of thought on the subject thinks it should be, the commodities clause, if amended as proposed by the Hoch bill, would have teeth in it. The Hoch bill makes the commodities clause binding on "all common carriers" which of course, includes pipelines.

So amended and construed the Gulf Pipe Line Co. could not transport oil for its proprietary interest and the Stanolind Pipe Line Co. would have to quit hauling for the Standard of Indiana, until other arrangements could be made.

But the commodities clause, as construed by the courts, has not greatly damaged the hard coal carrying railroads at which it was aimed and which formerly owned, directly, the hard coal mines. In obedience to the commodities clause, when the courts said they had to obey it, the hard coal roads transferred their coal mines to companies in which they retained a stock interest so that even today the Lehigh Valley, the Reading and the Delaware & Hudson are popularly regarded as owning the coal mines of companies having names similar to their own.

Golf Course from Lease Junk

THE folks living in a camp of the Gypsy Oil Co., near Jenks, Okla., reduced a junk pile considerably when they built themselves a private miniature golf course. All the material was picked up about the company leases.

The tees are made of old pieces of belting and the guide rails are mostly composed of 2-inch pipe. Fairway rollers were constructed from idler pulleys with handles of bent sucker rods. Junk 6-inch casing forms a number of hazards while the cylinder block of an old model T offers four difficult holes in the middle of one fairway. Light poles and fence posts are also old 2-inch tubing, and the center of the lot has a mounted weather vane that is a creation of pipe fitter's art.

Would Require Shale Land Patents

WASHINGTON—The House committee on public lands today submitted a recommendation putting oil shale mining claims upon a patent basis, although filed under the placer mining law of 1872 and deemed valid by thousands of claimants. The proposed legislation would declare void and forfeited on July 1, 1932 every placer mining claim unless $100 worth of work is done upon such claim or $100 paid to the land office for the district before that day and provided further that the money so paid might be considered as part of the $500 worth of labor needed to bring the land to a patentable status.

Claimants must also apply for a patent not later than July 1, 1934.

Bills Curbing Industry Mixed With Constructive Texas Proposals

By Paul Wagner

N. P. N. STAFF WRITER

HOUSTON, Feb. 12 PROPOSED legislation affecting the petroleum industry in all its branches reached the introduction stage in the general assembly at Austin this week.

Bills introduced range from a measure seeking divorcement of retail distribution from other branches of the petroleum industry to proposals defining statutory profits for pipelines and the regulating of production practice.

The bill seeking alienation of retail distribution of petroleum products from other branches of the industry would prohibit even remote control, or ownership, of service stations by corporations otherwise engaged in the industry. The bill also would prevent such corporations acquiring, holding or dealing in oil royalties.

Effect of passage of the bill would be to require integrated companies owning thousands of service stations in Texas to give them up within 12 months.

An operating measure would be to fix marginal well limits, below which prorating of production would not apply, and another[1] would set up gas/oil ratios governing exploitation.

Marginal wells would be defined as those producing 10 barrels a day or less, at depths to 2000 feet; 20 barrels between 2000 and 3500 feet; and 40 barrels below 3500 feet. Marginal well allowances under present prorating practice in Texas are generally four barrels each daily, except that originally a graduated scale applied on the basis of six barrels to depths of 2000 feet; 12 barrels between 2000-3500 feet; and 20 barrels below 3500 feet.

The gas/oil ratio bill would give the railroad commission, as the state's conservation agency, power to fix flexible rules applicable to production in different fields and under varying conditions; providing also that only residue gas may be used in the manufacture of carbon black and that usage of other gas would be restricted to heat, light, fuel and power purposes.

Independent operating interests, who are credited with the the bill seeking disintegration of the marketing branch from other phases of the Texas industry, are also back of the pipeline tariff measure.

The transportation measure would restrict pipeline returns to 10 per cent yearly "on money actually and necessarily invested (by common carriers) in the construction and physical maintenance of such pipelines and their physical properties, plus the return of such money within a reasonable time, to be determined by the railroad commission."

THE proposed measure in no way conflicts with the so-called common purchaser statute passed by the 41st legislature, which provided for ratable takings from all producers in an oil field and sought to avoid discrimination in purchases as between fields or districts producing similar grades of crude.

Representative Phil Sanders, chairman of the House appropriations committee, introduced three measures involving oil and gas taxation. One bill proposes a one cent a barrel tax on all oil transported by pipelines, which the author says would raise more than $2,500,000 annually.

A second measure would impose a one-fourth cent tax on each pound of carbon black manufactured in Texas, and a third bill proposes a graduated tax on natural gas. For the first 100,000,000 cubic feet of natural gas produced the tax would be one-fourth of a cent on each 1000 cubic feet, increasing progressively up to two cents a thousand for quantities exceeding 500,000,000 cubic feet.

A UNIFORM price measure soon to come before the Senate state affairs committee affects gasoline among other commodities sold in Texas. The bill provides that any commodity shall not be sold at a higher price in one community than another, taking into consideration quality of the commodity and freight rates.

A bill relating to oil land titles was introduced in the house by R. M. Wagstaff and in the senate by Clint Small, seeking validations previously proposed in earlier legislatures.

The bill would validate title to fifteen-sixteenths of the minerals in and under mineral classified public school lands of Texas. Under the relinquishment act of 1919, fifteen-sixteenths of such minerals was released by the states to the owners of the soil and one-sixteenth royalty was reserved to the state.

General land office and legal construction at that time vested fifteen-sixteenths of the minerals in the fee owner, and one-sixteenth in the state; but a decision of the Texas supreme court later was that landowners acquired no legal title, but merely received the right as agent to execute oil and gas leases on the property and to receive one-sixteenth of the gas and oil produced as consideration for such agency.

[1] NATIONAL PETROLEUM NEWS, pg. 56, Feb. 4, 1931.

THE TREND OF THE TIMES

By David Lawrence

Published in the Petroleum Industry Exclusively by NATIONAL PETROLEUM NEWS

CURRENT conversation on the depression reveals a notable emphasis on morale. The country can go from the dismal depths of December into the gentle heights of January and feel that it has made material progress. Contemporaneously, some unfavorable developments can appear on the horizon and when the markets show a rugged resistance thereto, we are made to feel that somehow the worst has passed.

What we are lacking, indeed, is a yardstick. Or perhaps it ought to be called a perspective. The difficulty is that most of us have not been through an experience similar to the present depression and we are, therefore, expecting a return of "normal business" with every confidence that what has been in the past will be once more. The wiser heads tell us that while he may properly become sanguine about the future in due time, we need not be disappointed if the next era is an entirely different one from that which preceded it.

Business men in 1931 already are altering their methods and rearranging their affairs so that new sources of revenue may be found.

Basically, the year 1930 saw what may be termed a reckless curtailment of expenditure. The term "reckless" is used advisedly because some of the larger corporations of the country become so panicky over the importance of retaining their earning of other years that they thought the way to accomplish that result was merely to cut down one side of the operation. They forgot that much of the expense built up in boom time was based upon the sound theory that in order to make money, business has to expend money.

There is no doubt that considerable waste and extravagance has prevailed and is more likely to become extensive in times of prosperity than in times of depression. But judging by the way some of the major industries reacted to the drop in business during 1930, one would have thought that the entire sales mechanism was founded on a false premise in the first instance.

What has happened recently is that as business has regained confidence in itself, there is a natural return to the expenditures which previously proved productive. Certain products cannot be sold except by personal selling. Other goods can only be distributed as a result of carefully planned appeals to the public. It is significant that several companies had a better year in 1930 than in 1929. These concerns are going forward confidently. Evidently, not a few companies which had no reason to curtail operations except an intuitive fear of catastrophe that never materialized now recognize the time spent in hesitation was expensive, indeed.

Caution is, after all, a virtue which can never be denied. But there is on the other hand another business attribute which so often spells success in modern business. It is the faculty of knowing when a sound economic basis for the distribution of a product has been reached and pushing ahead with all possible force for sales so long as the response is at all commensurate with the outlay.

Most significant in recent developments has been the continued stabilization of several factors which were more or less unsteady in the latter part of last year. Thus, the credit situation has improved substantially and the industrial companies which needed refinancing are finding a better market for their securities. Some of the larger issues of securities or bonds reveal how the bigger corporations managed their expansion programs during 1930. Apparently, large bank loans were made which are now being paid off with the proceeds of bond issues. Thus we see how important it was to provide a good bond market in the early part of 1931.

While here and there, the aftermath of 1930 is giving considerable concern, individuals as well as businesses have now settled down to a long, steady pull. The idea that good business would come in through the window or through the door without any effort being made to get it has apparently been erased from the minds of many business executives who thought that normalcy was inevitable as a matter of course and that sufficient momentum had been achieved in 1929 and the early part of 1930 to ride along constantly on the crest of previous sales effort.

DELAY in receiving the weekly report on refinery operations from the American Petroleum Institute made it impossible to carry those figures in this issue of NATIONAL PETROLEUM NEWS. They will be carried in the next issue, together with the current figures.

Today's sales are being sought with more intelligence, with more power, and with more carefully planned expenditure than at any time since prewar days. Competition is keen in many lines and this has only challenged the ingenuity of American business the more insistently. We have witnessed in recent weeks an interesting series of sales efforts by some of the largest publications in the country which have refuted what appeared to be an excess of hesitation. The reminders that it is just as easy to go in one extreme as in another during a depression have been forcefully portrayed in large advertisements before the business public.

The significance of this drive which is all a part of the psychology of depression will not soon be lost on the American business man. For whatever may be the arguments in the executive committees and the boards of directors about the pulling power of advertising as a sales force, the fact remains that appropriations have been gradually cut down ever since the beginning of the depression. Publications which have always had faith in the value of advertising as a means of selling products were not very quick to realize how much slashing of advertising appropriations was going on until the latter part of 1930. Then they began to issue their warnings. They brought forth tables to show that during the 1921 depression the companies which kept up their advertising appropriations came out of the storm with many more assets than their competitors.

R. D. Matthews Is Executive Vice-President of Union

LOS ANGELES, Feb. 10.—Important changes were recently announced in the executive personnel of Union Oil Co. of California following a special meeting of the board of directors. The changes included the election of R. D. Matthews, vice president in charge of sales to the position of executive vice president; the resignation of R. J. Keown, vice president and treasurer since 1918, and the election of J. M. Rust, assistant treasurer, as his successor.

Mr. Matthews assumes the duties of this chief administrative office left vacant by the election of L. P. St. Clair to president of the company July, 1930. He is only 44 years of age. British born and educated. His early training in England gave particular emphasis to the necessity for practical experience in accounting, finance, taxation and legal subjects—a training that proved invaluable in his duties with Union of California.

He came to the United States in 1911 and to the Union Oil Co. as comptroller in 1914 at the age of 28. Within a year he was elected to the board of directors and the executive committee. Since then Mr. Matthews has had a phenomenal succession of promotions.

His activities included a general reorganization of the company's business and accounting methods, with refinements in matters pertaining to finance and taxation. As vice president in charge of manufacturing he developed and supervised the company's refining operations.

In 1923 when the company was seeking a means of providing for the eventual retirement of its employees, Mr. Matthews developed the company's Provident Fund, said to be one of the most satisfactory systems of its kind, both for the employee and the company. No announcement has yet been made as to his successor.

In undertaking the duties of treasurer, Mr. Rust brings a long record of service with the company. Following fifteen years of service with the Santa Fe railroad, he entered Union's accounting department in 1906, was promoted to credit manager in 1911, and in 1918, when the credit division was joined with the treasury department, he was made general credit manager. Nine years later he was advanced to the position of assistant treasurer.

Retirement of R. J. Keown, vice president and treasurer of Union Oil Co., terminates a service record of more than 23 years. From the position of traveling auditor in 1907, Mr. Keown passed through a variety of positions to that of assistant treasurer in 1913, and that of treasurer five years later, the first to achieve this position from within the organization. In March, 1924, he was elected to the board of directors and in May of last year was made a vice president.

R. D. Matthews

J. M. Rust

How Richfield Arrives at Crude Value In New Contract with Producers

By David E. Day*

PRACTICALLY since the inception of crude oil purchasing in California, gravity has been used by the purchasing companies as a yard stick for measuring the value of the purchased crude. Under this method, a base price is established for the lowest gravity crude in a given field (taking into consideration the general quality of the crude in the field and the cost of transportation to refinery centers) and this price is increased in a definite proportion for each degree increase in gravity.

In general, this scale has been a fair measure of the anticipated returns from the marketable refined products in the crude, but only generally. In certain instances, crudes of the same gravity in the same field will vary in gasoline content. Rather more frequently, crude of the same gravity from the same field will vary in the "middle cut" (the kerosine-gas oil fraction.)

As a result, in many instances under this price schedule, a specific producer has been penalized, while another producer has received an unwarranted price.

In working out the problems of the Richfield Oil Co. of California, William C. McDuffie, the receiver for the company, decided to offer the producers from which Richfield had been purchasing crude a new form of contract. This contract is, in effect, an agency agreement by which the refining and marketing company agrees to transport, refine, and market the products from the producer's crude and remits to the producer the net proceeds derived from the sale of the products in the crude, less the cost of handling and refining, with a reasonable charge for the services so rendered.

Although individual deals of this nature have been tried in the past, this is probably the first contract ever generally offered by a major company to the producer in which the return per barrel of crude delivered to the refiner is based directly on the actual yield resulting from the sale of the products in the crude.

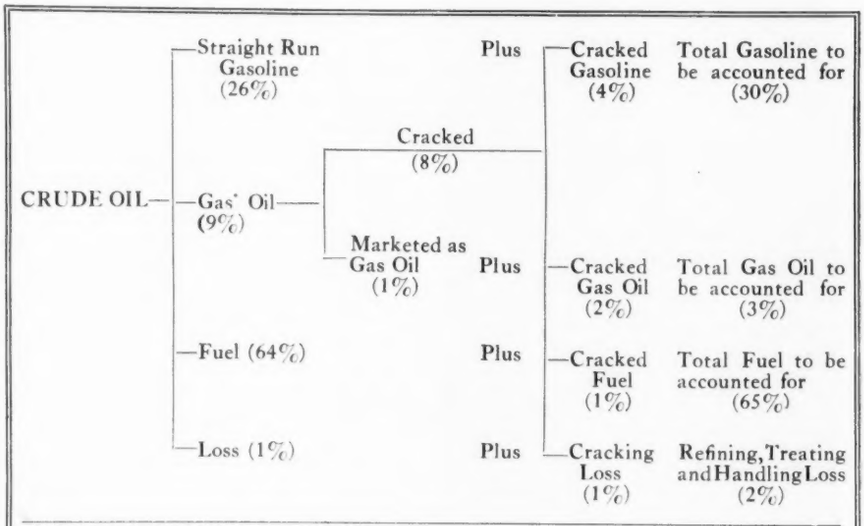
This method presents certain difficulties. The basic principle of the agreement is that the individual producer will receive the benefit of the net yields from the sale of the refined products in his particular crude, yet on the other hand the crude oils covered by the agreement come from many producers, in many fields, vary widely in quality, and yet are necessarily mingled in the refining process.

Obviously then, the first necessity of the agreement was a method to accurately determine the percentage of marketable refined products in any given crude oil by analysis of samples taken at the time the crude is delivered, and before it is mingled with other crudes. After very careful study of the problem the following basic facts were developed:

(1) The major marketable products of crude oil are (a) gasoline, (b) gas oil, and (c) fuel oil. Although there are of course numerous other products from crude oil, they are all derived from one of the three groups above mentioned, their actual sales volume is small, and their net financial yield is, on the average, approximately that of the main group from which they are derived.

The only important exceptions to this rule are lubricating oils and asphalt. However, these commodities can only be refined from selected crude, and, as Richfield does not pur-

*Refinery Engineer Richfield Oil Co.



Method of computing total gasoline, gas oil and fuel oil produced from any given crude oil with percentages for average Signal Hill Crude of 27° A.P.I. gravity.

Fig. 1

chase any crude suitable for their manufacture, they do not come within the scope of this agreement.

(2) The intermediate product, gas oil, is either marketed as such or is processed in the cracking plant to make additional quantities of the three main products. The final result is a total amount of gasoline, including straight run and cracked, to be accounted for as gasoline; a total amount of gas oil, including that marketed direct and that resulting from cracking, to be accounted for as gas oil; and a total amount of fuel, including the residue from the first distillation plus that resulting from cracking, to be accounted for as fuel. This is shown diagrammatically in figure I.

To arrive at the figures just discussed, two distinct methods are employed:

(1) A laboratory analysis is made of a composite sample representing the total deliveries of crude made by each producer from each lease (or separate delivery point) during any one month to determine the percentages of gasoline, gas oil, and fuel contained in the crude, and

(2) A determination of the percentage yields of gasoline, gas oil, and fuel oil produced by cracking the gas oil content of the crude. Due to the fact that gas oil produces approximately the same yields from cracking regardless of the field from which the original crude came or the gravity of that crude, these latter percentages can be taken from actual cracking plant operations.

After careful consideration, the Four Point Control Method was chosen for the laboratory analysis of the composite crude sample. Since 1922, this method has been used in California to determine in the laboratory the actual amount of marketable gasoline a crude oil will yield in the refinery.

During the ensuing years this method has been modified and improved until it is now generally accepted as the standardized method of crude analysis.

Briefly the method consists in topping a measured amount of the crude sample in a laboratory still down to a marketable residuum. (This ordinarily corresponds to a vapor temperature of 500° F. and distillation is stopped when the vapors reach this temperature.) A 300 ml. sample of the net tops resulting from this preliminary distillation is then re-run in apparatus specified by the American Society for Testing Materials.

When the vapor temperature in this redistillation reaches the various temperatures given in the specification for motor gasoline, readings are taken of the percentage of distillate recovered. The percent gasoline meeting the various points of the distillation is calculated as follows, assuming specification temperatures of 221°, 284°, 392°, and 410° F.:

% @ 221° (the 20% point) x 5
% @ 284° (the 50% point) x 2
% @ 392° (the 90% point) ÷ 0.9
% @ 410° (the end point) x 1

The actual gasoline content of the crude is the percentage shown by the lowest of the above four percentages. The actual gas oil content of the crude is the difference between the percentage of net tops and the percentage of gasoline as above determined.

The actual fuel oil content of the crude is the percentage difference between 99 per cent and the percentage of net tops, one per cent being allowed for normal loss.

The reason for this four point calculation is to show the amount of gasoline contained in the crude which, when redistilled, will meet all four specification points of motor gasoline. Obviously a crude might contain a considerable percentage of distillate with a 410° end point, but on redistillation this distillate would not meet the 20 per cent, 50 per cent or 90 per cent motor gasoline specification points and would, consequently, not be gasoline.

This method takes all four points into consideration and years of check runs against refinery operations show that the percentage of gasoline calculated by this method agrees with the actual percentage recovered in the modern, properly equipped, refinery.

It will be noticed that the specification points do not coincide with U. S. Motor specifications in two instances. In the first place, the new U. S. Motor specifications have replaced the 20 per cent at 221° F. with a 10 per cent at 176° F. Inasmuch as the gasoline recovered from the average crude is deficient in the lower boiling points, the use of a 10 per cent at 176° F. instead of a 20 per cent at 221° F. would have imposed a severe penalty on the producer, consequently the old 20 per cent was retained.

In the second place 410° F. is used as the final boiling point rather than 437° F., as given in U. S. Motor specifications. It is true that 437° F. appears in the motor specifications, but there is little or no gasoline sold in the territory where Richfield markets of such a high end point, the average end point of competitive gasolines being approximately 415° F.

The gasoline fraction cut at 410° F. by the Four Point Method has an actual end point, on redistillation of approximately 420° F., and in consequence 410° was substituted for 437° F. to meet this condition. Analyses are included that show the result of the Four Point Method on average Los Angeles Basin crudes of various gravities.

ON THE basis of yields shown in Fig. 1 of Mr. Day's article and current selling prices Richfield would be accountable to the producer as follows:

	Gallons	Price per Gal.	Less Total	Handling Charge
Gasoline	12.6	10.50	$1.32	$1.19
Gas Oil	1.26	2.14	.027	.025
Fuel Oil	27.3	1.43	.390	.357
Total			$1.737	$1.572

From the figure of $1.572 would be deducted all gathering, transportation and refining costs before the producer's actual return could be determined. No estimate has been made as yet as to what these costs will be. It will probably be about Mar. 15 before definite figures are available.

Richfield is understood to be receiving approximately 38,000 barrels of crude per day under this new purchasing plan.

H&A REV.
60330

RICHFIELD OIL COMPANY OF CALIFORNIA
WILLIAM C. McDUFFIE, RECEIVER

LABORATORY CERTIFICATE

REFINERY.

LOS ANGELES, CALIF. _____ 19____

SAMPLE OF ~~CRUDE OIL FROM~~ Average 27.3 Gravity Crude Delivered to Ricco Refinery

DELIVERED TO _____ DATE _____ 19____

LOADED _____

FOR ACCOUNT OF _____

TESTED FOR GASOLINE CONTENT BY THE FOUR POINT METHOD.
TESTED FOR M. & B. S. BY THE A. S. T. M. METHOD D-96-30.

GRAVITY DRY OIL @ 60° F. 27.3 °API M. & B. S. 1.60 %

DISTILLATION OF CRUDE OIL

GROSS CHARGE	2000	C.C.	GROSS TOPS OFF AT 500° F.	695	C.C.
M. & B. S.	% 32	C.C.	WATER	23	C.C.
NET CHARGE	1968	C.C.	NET TOPS 34.18 %	672	C.C.

DISTILLATION OF TOPS

CHARGE TO FINISHING STILL 300 C.C.

	TEMP. °F	AMOUNT DISTILLED	PER CENT OF TOPS	PER CENT OF CRUDE	FACTOR	GASOLINE CONTENT OF CRUDE
START	84					
OFF AT	221	42 c.c.	14.00	4.78	X5	23.90 %
OFF AT	284	108 c.c.	36.00	12.29	X2	24.58 %
OFF AT	392	208 c.c.	69.33	23.68	+.5	26.31 %
OFF AT	410	214 c.c.	71.33	24.36	X1	24.36 %
OFF AT		c.c.			X1	%

CONTENT OF _____ SPECIFICATION GASOLINE _____ %

Gasoline cut @ 410 F

IBP	148F
20%	235
50	286
90	374
EP	427
Grav @ 60F	51.9

Summary

Gasoline	23.90
Gas Oil	10.25
Fuel	64.85
Loss	1.00
Total	100.00

CERTIFIED CORRECT

FOR RICHFIELD OIL COMPANY OF CALIFORNIA

BY _____

FOR _____

BY _____

Fig. 2

The foregoing method determines the amounts of (1) gasoline, (2) gas oil, and (3) fuel oil present in the producer's crude. Actual plant figures are then used to determine the percentage of the gas oil which is processed in the cracking plant and the percentage sold direct, and the amounts of cracked gasoline, cracked gas oil, and cracked fuel produced from the cracking of this gas oil are added to the figures determined in the Four Point Control as shown in Fig. 1.

This gives a final result of so much gasoline, so much gas oil, and so much fuel to be accounted for to the producer, and the sum of these amounts, plus the ordinary refining losses is equal to the net amount of crude actually received from the producer.

It is now possible to account to the producer for his oil, the method being as follows:

(a) The total gasoline content of the producer's crude, in gallons (as determined above) is multiplied by the net average price per gallon actually received by the marketing company for all U. S. Motor gasoline sold by it during the accounting period.

(b) The total gas oil content of the crude in barrels (as determined above) is multiplied by the net average price per barrel actually received for gas oil sold as such during the accounting period.

(c) The total fuel oil content of the crude in barrels (as determined above) is multiplied by the net average price per bbl. actually received for fuel oil during accounting period.

From the sum of the amounts determined in (a), (b), and (c), an amount is deducted equal to the actual cost to the company of gathering, transporting and refining crude oil per barrel, including the proportion of cracking expense, and a further amount equal to one cent per gallon for the gasoline content of the oil and five cents per barrel on the gas oil and fuel oil content, which is the company's compensation for its refining, transporting, and marketing services.

Although the oil received is accounted for every month, to equalize sudden market changes a two months' accounting period is used including the current month in which crude deliveries are made and the next succeeding month. All cost expenses, and selling prices used are certified to by Price, Waterhouse and Co. or other certified public accountants of equal standing, and the figures obtained by the Four Point Method are certified to by E. W. Saybolt & Co. or other qualified chemists of equal standing.

The company is fully aware that flaws may be found in the contract that must be adjusted, and that conditions may arise which will unduly penalize either the producer or the company. In the latter case, if no adjustment is possible, either party may cancel the contract on 30 days written notice.

The contract was offered to the producer not as the perfect solution to the oil purchasing problem, but as a sincere and honest effort on the part of the refining and marketing company to remit to the producer the actual value of the marketable products in his crude.

In particular it is realized that the method of arriving at the amount of commission for the marketing company is not ideal. This has been freely expressed to producers and it is anticipated that immediately an effort will be made to arrive at a fair solution of this. Obviously, it must be some form of a sliding scale of commission which will penalize both the producer and the marketer when prices are low and which will allow them both to benefit when prices go up, rather than have a set commission to the marketer.

Sectional Groups Discuss Code Before Chicago Conference

CLEVELAND, Feb. 16

INFORMAL meetings to discuss the present status of the code of practices for the marketing of refined petroleum products are being held by state and local code committees in anticipation of the first mid-year meeting of the American Petroleum Institute in the Stevens hotel, Chicago, March 4.

One committee has already submitted a set of resolutions to the A.P.I. The nature of these resolutions will not be revealed until the general committee on marketing of the institute meets in Chicago March 2.

Directors of the institute meet March 3 to pass on any proposed action on the code which is considered necessary as a result of the Feb. 3 announcement of the Federal Trade Commission it was resubmitting the code to our industry with 18 of the 21 rules rejected and two of the remaining three rewritten.

The commission Feb. 9 granted a plea of the institute that the withdrawal of approval of the present code be held up for 60 days to give the industry a chance to chart a course of action. What will be done by the industry will be decided at the Chicago series of meetings.

MEANWHILE marketing operations are being continued in most territories as though the status of the present code had not been affected.

Benjamin A. Javits, a New York trust authority and counsel for several industrial associations, is quoted in the Feb. 15 New York Times as saying the trade practice conference rules, even when approved by the Federal Trade Commission, have practically no legal significance.

Mr. Javits thus adds reinforcement to the arguments of several corporation lawyers, who two years ago, when our industry was working for a code, stated that the trade practice conference was without legal standing and the codes were of little or no value from a legal standpoint. However, industries may set up their own codes or sets of rules in which they may define what they consider unfair methods of competition, he says.

MR. JAVITS was quoted in part as follows:

"Unnecessary confusion and uncertainty exist among business men today because of the commission's decision last May to reconsider all rules adopted in trade practice conferences. Industry does not appear to realize that the Federal Trade Commission is duty-bound to prevent unfair methods of competition whether or not there has been a trade practice conference; whether or not it has approved rules presented by the industry at such a conference, even though it has expressly rejected, a rule covering the unfair trade practice complained of, and whether or not an industry has, with or without the knowledge or approval of the commission, adopted a code of ethics or set of rules.

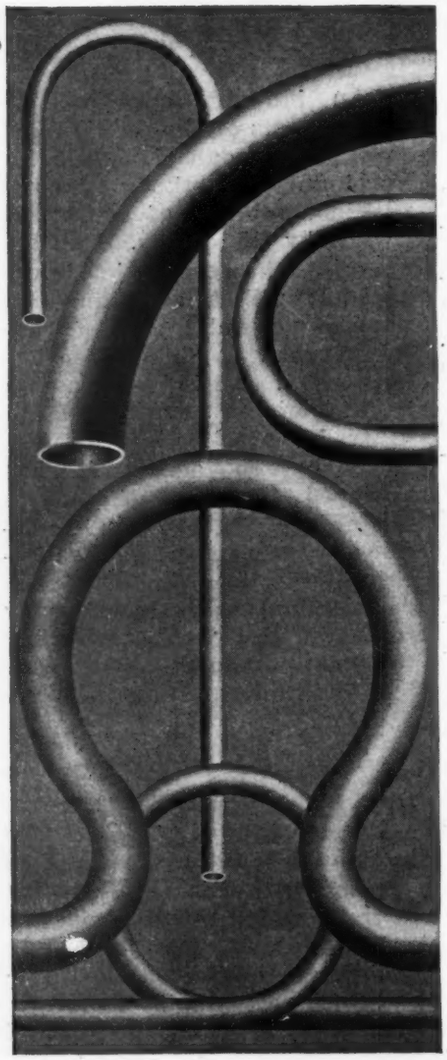
"Trade practice conferences are desirable only in so far as they cause competitors to unite for their common good and for the good of the public, and as far as they help clarify the meaning of the words 'unfair methods of competition.' The rules, even when approved by the commission, have practically no legal significance. A complaint alleging merely the violation of a rule approved by the commission would be inadequate in law; it would have to allege further that the act in question constituted an unfair method of competition. Ultimately, the last question is for the courts to determine, the findings of the commission being binding only as to the facts. Even there a court may admit further evidence.

"The commission can no better define an 'unfair method of competition' than any attorney conscious of the interests of the public; at least the definition of the commission is subject to final review. The rules adopted at trade practice conferences are but guides to the law for the purpose of helping the business man, but are not to be construed as expressions of the law itself.

"An industry conscious of the interests of the public may, through its counsel, define for itself unfair methods of competition, subject, of course, to review by the courts. The approval of the commission is unnecessary; that body must act upon any complaint that an unfair method of competition has been used. An industry acting in this manner has no need for a trade practice conference, since by so acting it has achieved the aim of such a conference. In addition, its actions in recent months have impaired the usefulness of the commission, as it has largely failed in its attempts to define to business men the true meaning of unfair methods of competition.

"OUR position is that restraints of trade may be in the public interest as well as against it; that is, the restraint of trade which results from the suppression of an unfair trade practice is in the public interest. Such restraints, we believe, are not subject to the ban of the Sherman law. At any rate, it is the duty of the commission, when complaint to it is made, to suppress such methods of competition, whether or not suppression constitutes a 'restraint of trade.'"

THE RIGHT PIPE FOR BENDS



The best of installation practice will not impart to a piping system qualities necessary for long life and satisfactory service. Durability must be in the structure of the pipe itself. When a certain make of pipe is used so generally for refinery piping, particularly where bending is involved, you can be sure that refinery engineers have an extra measure of confidence in its ability to make good.

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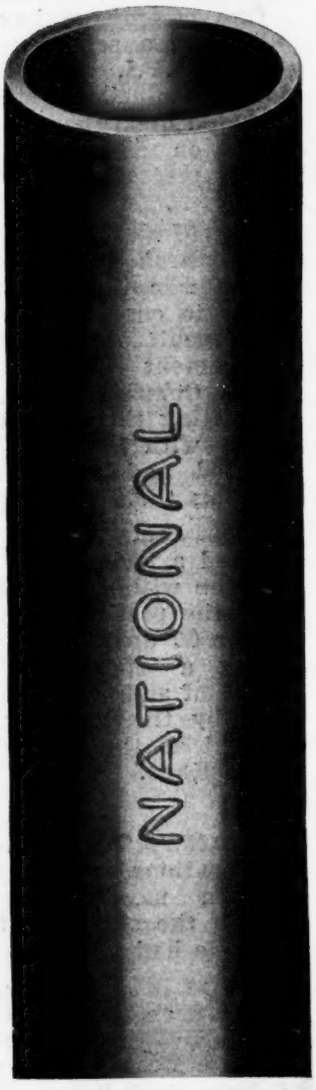


NATIONAL PIPE

WELDED OR SEAMLESS

Washing Minimizes Losses in Breaking In Great Lakes Gasoline Pipeline

By Allen S. James

N. P. N. STAFF WRITER

TULSA, Feb. 14

THE Great Lakes Pipe Line Co. has transported its first gasoline—from Ponca City and Barnsdall, Okla., to the Fairfax (Kansas City) terminal.

After more than a week of slow but steady pumping, the gasoline turned into the line by the Continental Oil Co. at Ponca City, and the Barnsdall Refineries, Inc., at Barnsdall, flowed from the outlet pipe at the Kansas City terminal at 1 o'clock Saturday morning, Feb. 7.

The gasoline, according to company officials, was almost clear when it first appeared, and within a few hours tests showed it to be water white in color, and to be free from any traces of water. The gasoline then was turned into one of the large storage tanks at the terminal.

Appearance of the gasoline at the Kansas City terminal meant that in the course of the week approximately 90,000 barrels or 3,780,000 gallons of gasoline were withdrawn from the storage tanks of two Oklahoma refineries, and transferred to permanent pipeline storage.

That the gasoline was as clear as it was when it reached the Kansas City terminal was attributed to the fact that engineers took advantage of the mild weather in the first week of February to give the interior of the line a thorough washing before the gasoline was first introduced.

Plans originally called for the pumping of a "head" of water through the line, and then the introduction of the gasoline. Officials expected a considerable quantity of gasoline would be lost because it would be used as a "cleaner."

When the water was pumped into the line, engineers received such favorable weather reports that they decided to take a chance against a possible severe freeze, and accordingly filled the entire line with water. As the weather remained mild the pumps continued to be "broken in" by pumping the water through the line, and for 10 days the line was washed.

This long period of washing gave the engineers ample time to go over the entire system and repair small leaks and to adjust the new engines and pumps. The result was a smooth working transportation system when the gasoline finally was turned into the line.

THE gasoline was pumped in at a rate considerably slower than the capacity of the line. This was done partly because a few of the pump stations have not been completed, which threw the load on a smaller number of pumps and also because the engineers were desirous of moving the gasoline slowly in order to push out ahead of the first gasoline all the water in the line.

The mild weather also permitted rapid construction work on the other divisions of the line, according to T. E. Richardson, chief engineer. The accompanying map shows the progress on the line up to Feb. 7. It will be observed that only four small gaps, totaling less than 50 miles, remain to be completed between Kansas City and Des Moines. One gap of less than 25 miles remains to be completed between Des Moines and Minneapolis. The Kansas City-Des Moines division has an 8-inch line, while the Des Moines-Minneapolis division has a 6-inch line.

The 6-inch line from Des Moines toward Chicago has been completed to the west bank of the Mississippi river, as well as the river crossing proper. No work has been started on the Des Moines-Omaha branch, nor on the Muskogee-Okmulgee branch. The line from Barnsdall to Okmulgee was rapidly nearing Tulsa.

The map also shows the location of the pump stations, which will be at or near the following towns:

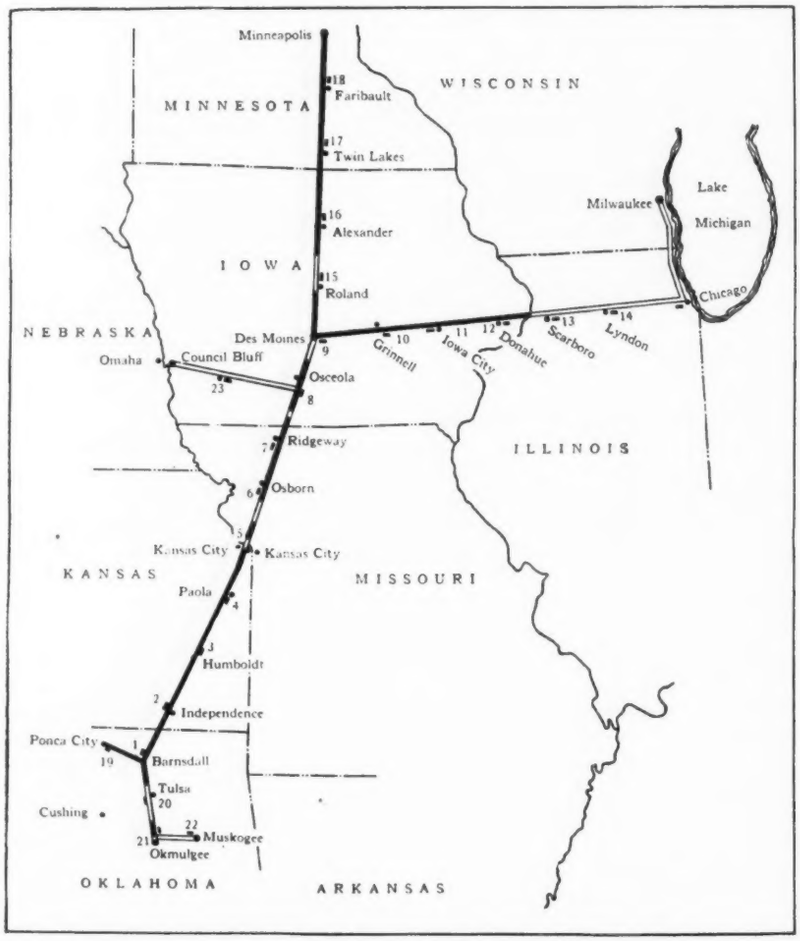
Barnsdall, Okla.; Independence, Humbolt, Paola and Kansas City, Kans.; Osborne and Ridgeway, Mo.; Osceola, Des Moines, Grinnell, Iowa City, Donahue, Alexander and Carbon, Iowa; Scarboro and Lyndon, Ill.; Faribault, Minn.; and Ponca City, West Tulsa, Okmulgee and Muskogee, Okla.

Several of these stations are nearing completion, and work was started the past week on those at Ridgeway, Des Moines, Alexander and Faribault.

Each of the stations will require an operating force of from six to nine men. Where a station is some distance from a center of population, company built, four-room brick cottages will be provided.

RAIL transportation facilities have been adequately provided at the Kansas City terminal. For the first time in the history of Kansas City, five major railway systems have shared in the construction of an interchange line to one industrial plant. The roads having access to the Great Lakes terminal will be the Union Pacific, Missouri Pacific, Kansas City Southern, Chicago & Great Western, and the St. Louis and San Francisco railroads.

This terminal will include, in the near future, marine load-



Here's progress to date on the Great Lakes Pipe Line Co.'s system. The heavy black lines along the right-of-way indicate the portions completed. The black dots are pump station locations

ing equipment on the banks of the Missouri river, and a loading rack for tank trucks. One 35,000-barrel tank, four 25,000-barrel tanks and one 80,000-barrel tank will be used for storage. A boiler plant and an Ethyl blending plant also will be a part of the terminal equipment.

Mid-Continent Gasoline Shipments Boosted by Warm January

TULSA, Feb. 7

WEATHER conditions during January, were almost the exact opposite of those during January, 1930, in the 11 states in the middle west into which Kansas, Oklahoma and inland Texas refiners ship much of their gasoline, according to data just published in bulletin form by the Western Petroleum Refiners Association.

Temperatures were above normal and precipitation below normal in each of the states during January of this year. Only one small section, the eastern portion of the northern peninsula of Michigan, experienced normal precipitation, but even in that region temperatures were above normal.

During January, 1930, it will be recalled, and rather unpleasantly by many, temperatures were below normal and precipitation above normal in many of the 11 states. A few states experienced temperatures below normal, with precipitation about normal, and a portion of Indiana and Michigan, and all of Ohio experienced temperatures about normal but above normal precipitation.

Weather conditions during January, 1929, were not as severe as were those in January, 1930, but were sufficiently off-normal to affect gasoline shipments. (See NATIONAL PETROLEUM NEWS, Feb. 27, 1929, page 93.)

Not since January, 1928, therefore, has January weather been as favorable for gasoline consumption as it was during the January just passed.

In comparing the gasoline stocks increase of 49 per cent in north Texas, it is well to keep in mind the fact that the Phillips Petroleum Co. has for some time been building up gasoline storage which will be converted to gasoline pipe line storage as soon as that company's line is completed from the Borger, Tex., refinery to East St. Louis. The company recently transferred to the pipe line division approximately 12,600,000 gallons of gasoline in storage at Borger. Deducting this amount of gasoline which will go into pipe line storage, and will never appear as having been consumed, actual available gasoline stocks in north Texas district at the end of January were 5.3 per cent less than those at the same period a year ago.

Comparison of Gasoline Shipments and Production from Mid-Continent Refining Area, in January, 1930, and January, 1931. Also Stocks at End of Each Month.

(Figures taken from weekly operations reports published in NATIONAL PETROLEUM NEWS.)

PRODUCTION
Gallons

DISTRICT	1930	1931	Percentage change
Kans.	46,990,000	51,489,000	+ 9.6
Okla.	79,551,000	72,527,000	— 8.6
No. Tex.	41,596,000	45,411,000	+ 9.2
W. Texas.	17,172,000	17,267,000	+ 0.6
Total	185,309,000	186,694,000	+ 0.7
SHIPMENTS			
Kans.	42,163,000	45,808,000	+ 8.6
Okla.	67,914,000	71,630,000	+ 5.5
No. Texas.	39,546,000	46,299,000	+17.1
W. Texas.	17,671,000	16,160,000	— 8.6
Total	167,294,000	179,897,000	+ 7.5
STOCKS	(Jan. 31)	(Jan. 30)	
Kans.	28,245,000	29,367,000	+ 4.0
Okla.	72,921,000	45,868,000	—37.1
No. Texas.	23,212,000	35,585,000	+49.0*
West Tex.	12,812,000	13,255,000	+ 3.5
Total	137,190,000	124,075,000	— 9.5

*Deducting 12,600,000 gallons held in storage for pipeline, percentage change would be —5.3.

Texas District Court Upholds Proration As Constitutional, Reasonable

By Paul Wagner

N. P. N. STAFF WRITER

HOUSTON, Feb. 14

CONSTITUTIONALITY and reasonableness of crude oil proration practice in Texas were upheld in district court at Austin, Feb. 13, when Judge C. A. Wheeler ruled in favor of the state railroad commission in a suit brought by the Danciger Oil & Refining Co.

The court declined to make permanent a temporary injunction, in force since last fall, affecting Danciger producing properties in the Panhandle district. The case will next go to the court of civil appeals and probably will reach the supreme court of Texas.

Had the decision been in favor of the Danciger interests, the statewide proration program in effect since last August would have been largely defeated. As the situation now stands the railroad commission's authority as a conservation agency is clarified. The Danciger suit, which was regarded as a test case, was one of several pending in the courts and affecting properties of individual companies.

"If anything the rules promulgated by the railroad commission are too reasonable," Judge Wheeler ruled on the subject of regulations for prevention of physical waste of oil and gas. The court ruled there was no question on the constitutionality of proration measures.

The Danciger company had attacked the practice of producers in a field paying the proration umpire's salary, charging that gave major operating interests control over oil recovery.

The court pointed out the railroad commission had the sole "hiring and firing" power affecting umpires; and it was further shown that other state departments had established the practice of accepting time, efforts and money from individuals interested in the enforcement of some law.

Judge Wheeler's decision came at the end of a two weeks' hearing following several postponements of the injunction suit, which was filed Sept. 25, 1930.

Under proration, crude now being recovered daily from Texas fields totals approximately 677,000 barrels, or nearly 33,000 barrels more than the maximum sought under statewide curtailment orders effective for the period of Jan. 24 to March 31.

NEARLY 8000 barrels of the states's total shown in last week's American Petroleum Institute production report came from the Gregg-Rusk district of East Texas, where no proration measures have been taken. Present week figures will show approximately double the volume from that territory, with possible increase of the entire state to nearly 685,000 barrels.

The state maximum sought for the present prorating period was 644,253 barrels, except that the total might be modified to the extent that Wichita Falls, Ranger and Panhandle district operators were able to find increased market demand above the allowables fixed in railroad commission orders. No increased markets have been found for such districts.

No date has been set for the East Texas proration hearing at Tyler[1], agreed to be held not later than March 1.

East Texas opponents of proration are on record against any steps for curtailment prior to April 1, when statewide orders are up for renewal. Meantime, development is being carried forward by many small operators in the Joiner and Kilgore areas of northwestern Rusk county, where congestion of production outlets already is the order of the day.

The saving grace in the general east Texas situation is the low reservoir pressures of completed wells and the indications of their short flowing life already apparent.

East Edge wells on the Bradford and Ashby tracts in the Joiner area of Rusk county are being prepared to pump in several instances; and some of the larger completions have declined rapidly after the finishing of offsets.

The Deep Rock-Foster month old completion on the Ashby, which was making 1120 barrels Feb. 11, 360 pounds casing pressure and 40 pounds tubing pressure, had declined from initial production of approximately 3300 barrels.

An offsetting well of the Deep Rock, its No. 1 Mayfield-Alford, was then flowing 2950 barrels through casing and 2½-inch tubing, casing pressure 60 pounds and tubing pressure 25 pounds.

THE nearby Foster, Jeffries & Kolp well on the Mayfield-Alford, had gone "dead" after flowing 1844 barrels daily and being shut in. When reopened it flowed 150 barrels in 30 minutes and then quit.

Behavior of the wells, coupled with their low pressures, indicates more and more to operators experienced in North Louisiana fields that the Gregg-Rusk district will prove very similar to Homer, El Dorado and Caddo operations as development proceeds.

[1]National Petroleum News, page 36, Feb. 11, 1931.

One Day in the Life of a Legislature

(As Compiled by Ellick Botts, consulting pumper, Gray Horse, Okla.)

HOUSE Bill 387—By Smootch, Drizzle and Aitch: An act to prohibit the wearing of more than two pair of pants, except in December and January, and declaring an emergency. Referred to committee on public health.

House Bill 453—By Lizard (unassisted): Being a measure that would impose a tax of 7 cents per gallon on gasoline, except that used in cars costing less than $1,000, on which no tax shall be paid. Referred (by mistake) to the committee on disposition of useless executive papers.

Senate Bill 7823—By Dervish, Endwise and Apfelbaum: An act to promote the public welfare by requiring banks to post monthly the bank balances of all depositors. Referred to committee on rivers and harbors.

Joint Resolution 322—A petition to the President of the United States requesting the loan of uniforms for generals on the governor's staff. Referred to joint committee on pomp and ceremony.

House Bill 381—By Jughead, assisted by his wife: Providing for a tax on automobiles for the support of local chapters of the Anti-Horse Thief Association. Referred to the committee on animal husbandry.

Whereupon the legislature adjourned to attend the semi-finals in the state horseshoe pitching tournament.

* * *

It is now obvious that the new state government of Oklahoma is going to contribute nothing helpful to the solution of the vexatious conservation-proration questions. "Alfalfa Bill" Murray, the governor, has already turned out to be a vain creature, fond of the sound of his own voice and as unstable as quicksilver. He may announce his position on something one day and take it all back the next. Sometimes he doesn't even wait until the next day.

He never says he was misquoted; merely he ignores what has gone before. He appointed a committee to recommend oil legislation, then alternately spurned and embraced it for two weeks. His position, 30 minutes ago as this is written, was that the committee had done nothing that enabled him to arrive at an understanding of the oil problems.

That is no indication that he will not come out in a few days and say that the majority report was just what he required. He has the legislature cowed by his threat to ring the fire bells in all the county seat towns of the state and call upon the citizenry to march upon the capitol if his measures are opposed. It is proving to be quite a mess and everybody will be glad when the legislature goes home.

* * *

Thomas A. Dines, president of the Midwest Refining Co., was recently elected president of the Utah Oil Refining Co., which is controlled by the Standard Oil Co. of Indiana. He succeeded the late John C. Howard.

* * *

"KANSAS CITY, Jan. 28.—(A.P.) A stream of water pumped into the Great Lakes Pipe Line Co.'s 8-inch gasoline line Jan. 17, at Barnsdall, Okla., as a test, made its first appearance here today. . . . A bedraggled drowned Kansas jackrabbit, apparently entrapped in the pipe while it was being laid, popped out. Several cottontails, which met a similar fate, followed."—News Items.

Upon reading the foregoing, Ellick Botts, the consulting pumper, leaped wildly into space and bounced about for several minutes. Mr. Botts was the author, or designer, of a scheme to utilize inactive pipelines as rabbit conduits, where they lead from good rabbit country to large cities.

"It all goes to show what happens when a scientific idea gets into the hands of amateurs," said Mr. Botts. "My plan provided that the rabbits should move in a dry line, under their own power. Nothing was said about washing them through.

"It won't work. Nothing renders a rabbit so completely null and void as to be penned up in water. I urge that the Great Lakes or any other company planning to make use of my plan see me and let me help them avoid such mistakes as the one just made. I will be glad to help at my regular consulting fee."

* * *

Officers of the East Texas Refining Co., which has started building 6000-barrel refinery at Henderson, Tex., are F. W. Burford, president; J. J. Thomas, vice-president; E. B. Campbell, treasurer and Ralph E. Bishop, secretary. Mr. Burford is also president of the Burford Oil Co. which operates refinery at Pecos, Tex., and Mr. Thomas is vice-president of that company. Mr. Campbell, who has been with the Burford company at Pecos, has moved to Henderson and Mr. Bishop has resigned as sales manager for the Crystal Refining Co., Shreveport, to go with the new East Texas company. Mr. Burford was one time head of the Crystal company.

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Minority Asks Governor to Disregard Report of Oklahoma Committee

TULSA, Feb. 14

RECOMMENDING to Governor Murray that the work or the special oil committee appointed by him be disregarded, a minority report was filed this week by members E. B. Reeser, president of the American Petroleum Institute, W. N. Darrs, Phillips Petroleum Co.; Wirt Franklin, leader of the independent producers' fight for a tariff on crude, and Roy Johnson, independent operator of Ardmore.

They said they found it necessary to dissent from the "hasty, ill-considered and clearly biased report upon these matters recently filed with you by the majority of the committee."

The majority report urged the governor to consider new legislation, striking out the present proration laws of Oklahoma and substituting therefor something like the laws of Texas, including a statute on prevention of waste and a common purchaser act, placing the burden of proration on the buyer, instead of upon the producer, as is the case in Oklahoma.

THE minority committee recommended that the governor invite governors of other states, notably New Mexico, Texas and Kansas, to participate in a conference "with a view of meeting the entire overproduction problem of the Mid-Continent area upon a basis fair to all the states and along lines that will be practical, workable and legal."

Governor Murray acted upon this suggestion before the report became public. The idea of uniform state legislation on conservation of oil and gas is not new; it was originally proposed in the first report of the Federal Oil Conservation Board, revived by President Hoover when he called a conference of states and the federal government, held in Colorado Springs in June, 1929, and recently brought up again by Secretary Wilbur, when he addressed the meeting called by governors of oil producing states and held in Washington in January.

Governor Murray has not announced details of any plan he may have in mind for such a conference beyond saying that he believed uniform legislation could be achieved. Date of the conference has not been set, nor have any acceptances been recorded.

THE governor has indicated several times in press conferences that the labors of his oil committee have been of no assistance to him. The minority report asked him to take that view. It said that the meetings of the committee were perfunctory in nature, that no effort was made to examine the conservation problem, to review the work that has been done over the past several years. Four meetings were held the minority said, and the combined sessions amounted to five or six hours.

"In point of fact," said the minority, "the deliberations of the committee largely were confined to a debate upon a single question, namely, as to whether or not the 1915 Conservation Act of Oklahoma providing for the ratable taking of oil from an oil pool when all the production therefrom could not be marketed should be entirely repealed or so amended as to strike from the Act the most constructive provision appearing therein, which provided for prorata production.

"Even in respect of this debate the committee did not deliberate with an open mind. Five members of the committee, a majority thereof, entered and left the meetings of the committee having as their definite design and purpose, either the repeal or the emasculation of the 1915 act. Each of these members of the committee held such preconceived notions upon the subject that no amount of argument or reasoning or even presenting facts would have changed their position.

"Two of the five majority members are connected with companies owning producing properties in the Oklahoma City field and having a large amount of empty storage tanks, or exclusive markets through their privately owned pipelines to their own refineries.

"They naturally desire an opportunity to produce a maximum amount of oil through their wells, however much they may regret that, incidentally, they will drain the oil and gas from under the properties of their neighbors and, in effect, of all the producers in the field who lack a market for equal propositions of their oil. ....."

THE minority then presented a defense of the principle of ratable production, pointing out that the Oklahoma law was enacted at the behest of independent operators who owned no pipelines. It went on to picture the predicament of producers if ratable taking should be abandoned.

"What must the independent producers do under such circumstances?" said the report.

"They must try to find an outlet at whatever price, and since production must be either consumed or stored, and lower prices will neither increase consumption nor decrease the

available supply except by abandonment of the older pools as the price progressively falls below their operating costs, it is obvious that there would be no relief until the price reached the point where capital would be willing to undertake the economically indefensible program of taking oil from natural storage in the ground and adding it to the existing burdensome frozen stocks above ground.

"It is obvious that such a price must be less than the production costs of a current supply sufficient to meet the current demand and it has been stated that oil from the Yates pool, in Texas, which has a rated daily potential of some five million barrels, can be profitably produced for five cents a barrel.

"There can be no doubt that pools in Texas and New Mexico now curtailed under proration or in the first stages of development can produce an ample supply for all markets to the south of Oklahoma at costs which Oklahoma producers cannot meet. With proration abandoned it is altogether probable that this low cost production will invade Oklahoma's markets to the north."

The minority opposed the recommendation of the majority that a common purchaser law be relied upon. The ratable taking law now upon the statute books of Oklahoma, they contended, is a conservation measure for it keeps the oil in the ground when the market cannot absorb all the production. The common purchaser act operates only when the oil has been produced and then upon certain classes of purchasers only.

It pointed out that the Sinclair company, for example, with a pipeline into the Oklahoma City field, "claims that it is not a common purchaser, yet we find the member of the majority committee, who represents the Sinclair company in this matter, making the plea that the common purchaser law performs exactly the same public service as does the ratable taking provision of the 1915 act." (Since the minority report was written Sinclair has posted a price in Oklahoma City, which removes that part of the criticism offered by the minority committee.)

The minority did not wholly confine itself to a defense of the status quo; it made a recommendation for improvement of the method of conducting proration. It said:

"Therefore, we suggest ..... that a recommendation be made by you to the legislature that, in determining potential production, the acreage factor as well as the production factor be taken into account upon some fair and scientific basis.

"This method of determining potential production as a basis of ratable taking has been employed in certain fields in Texas for several years. We have no exact formula to offer in this respect, but, upon proper testimony, one can be worked out."

Bill Introduced to Destroy State Proration in Oklahoma

OKLAHOMA CITY, Feb. 14

FIRST legislative attempt in Oklahoma at the present session to change the conservation and proration laws of the state came this week when Rep. Cham Jones, Stephens county, introduced House Bill No. 283.

It is proposed to enact a law governing waste and to repeal the law which provides for proration. The bill specifies that "neither this act nor any other law shall be construed so as to make the production and sale of crude or petroleum a public business; and, provided further that no law relating to the conservation of natural gas shall be so construed as to apply to a well operated for oil."

In the definition of waste, the bill provides specifically that it shall mean only actual physical waste and destruction and that the law shall not be construed to mean economic waste.

The corporation commission is given authority to make rules for prevention of waste, but is excluded by the proposed law from attempting to regulate the distribution of pressure within producing sands.

Appellate jurisdiction is conferred upon the supreme court to review the actions of the corporation commission and to modify, amend, confirm or set aside in whole or in part any order the commission makes.

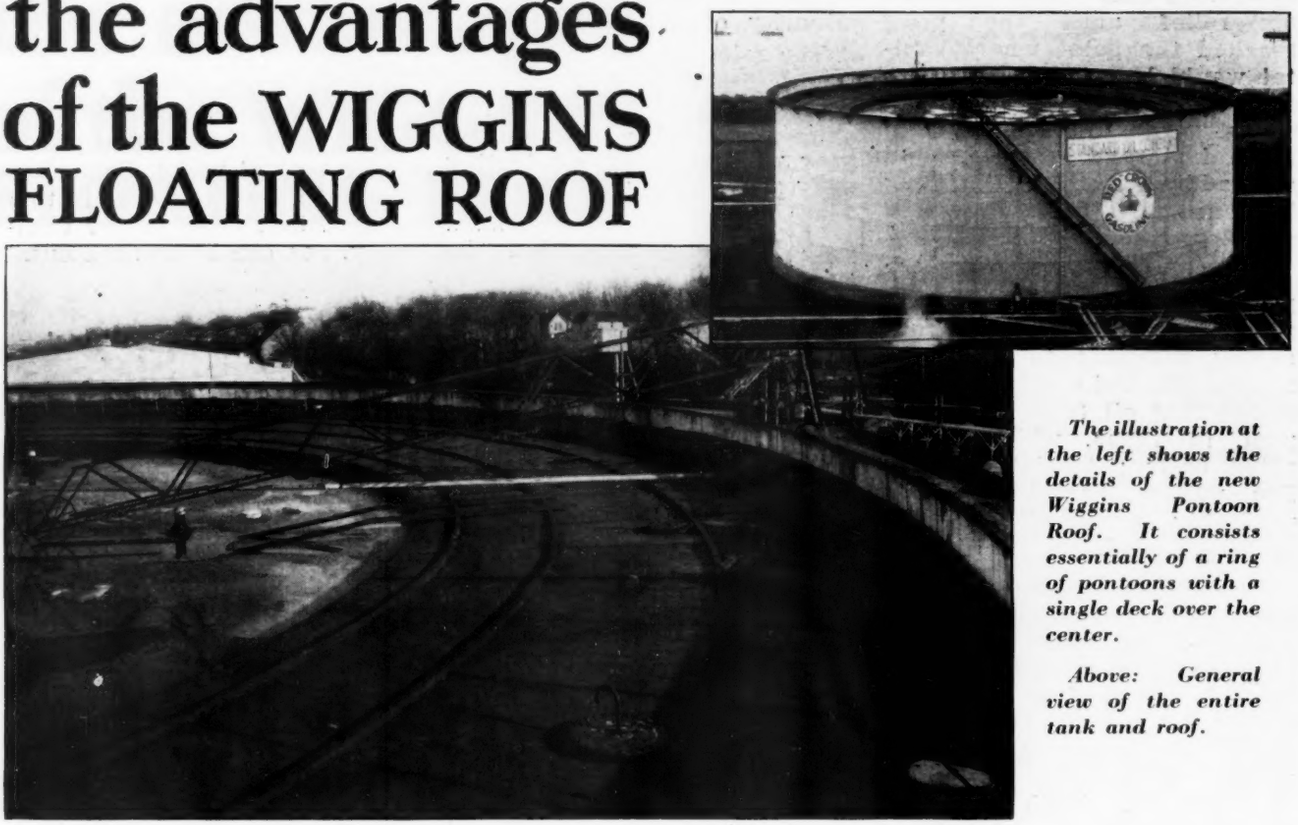
The Jones bill would repeal entirely those sections of the present law under which proration is carried on and nothing is substituted therefor.

Peculiarly enough, at the time the attempt is being made in the Oklahoma legislature to repeal the proration law, a bill is before the house in Kansas to enact for that state substantially the same proration and conservation statutes that Oklahoma now has.

Following the introduction of the Jones bill, William N. Davis, president of the Mid-Continent Oil & Gas Association, issued a statement in which he said that "it becomes evident that the purpose of the sponsors of this bill is to destroy conservation in Oklahoma and to give the advantage, in times of overproduction, to the few fortunate concerns who happen to have their own pipelines or storage facilities and who, under such a law as that proposed, would be able to produce their own wells to capacity while their neighboring non-integrated producers would have to submit to drainage even unto the destruction of their properties.

"The bill thus epitomizes and illustrates the position of those few operators in the Oklahoma City field who for the past six months have been fighting proration before the corporation commission and the courts."

New improvements increase the advantages of the WIGGINS FLOATING ROOF



The illustration at the left shows the details of the new Wiggins Pontoon Roof. It consists essentially of a ring of pontoons with a single deck over the center.

Above: General view of the entire tank and roof.

THE new improvements in the Wiggins Floating Roof add non-sinkable construction, and insulation to the present features of the roof, and at the same time retain the advantages of heavy plate construction.

A ring of pontoons provides insulation at the rim and over the liquid around the edge, making the seal more effective and reducing the tendency of oil to boil in hot climates. The pontoons also eliminate any danger of sinking.

Before its incorporation in this structure, the pontoon feature was thoroughly tried out in service, and proven to be practical.

The roof floats on the surface of the liquid at all levels, stopping filling and emptying loss. Since the metal is in contact with the oil, fire hazard and corrosion from sour oil is reduced. By evaporation savings alone, the additional cost of this roof over ordinary cone roofs is repaid in a few months.

We will be glad to furnish further details of the Wiggins Pontoon Floating Roof and quote you on installations to suit your requirements. Please address our nearest office.

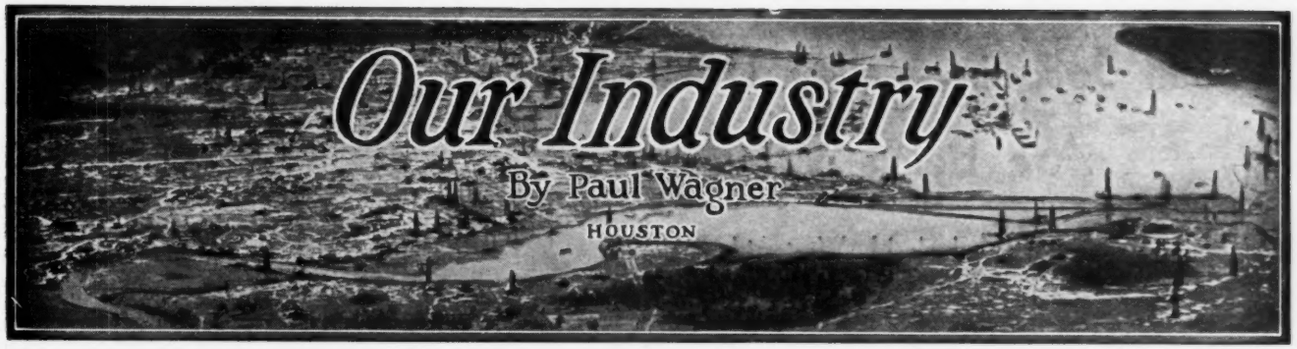
CHICAGO BRIDGE & IRON WORKS

STOP FIRE AND EVAPORATION LOSSES

Cleveland	2206 Midland Bank Bldg.	Chicago	2125 Old Colony Bldg.
Houston	1118 Electric Bldg.	Detroit	1513 Lafayette Bldg.
Tulsa	1407 Exchange Bank Bldg.	Birmingham	1534 Fiftieth St., N.
New York	3145 Hudson Terminal Bldg.	Dallas	3339 Magnolia Bldg.
Philadelphia	2614—1616 Walnut St. Bldg.	San Francisco	1060 Rialto Bldg.
Boston	1516 Consolidated Gas Bldg.	Seattle	4324 Smith Tower

WIGGINS ROOFS

N P N 2-18 Gray



SHADES of Ranger days development stalked regularly through the federal building at Houston, where the last half of January was mainly taken up with hearings by the government board on income tax appeals in the treasury department's suit to collect $4,713,000 from Ed F. Simms on his 1919, 1920 and 1921 income tax returns.

The case hinges mainly on values involved in formation of the Simms Oil Co., and the parent Simms Petroleum Co., with which Mr. Simms is no longer personally connected. Values of leaseholds, described by witnesses as then speculative and many of them afterwards condemned for oil production, are involved.

The government is seeking to establish market values on which to collect additional returns. Witnesses called by Mr. Simms included President W. S. Farish of Humble Oil & Refining Co.; Underwood Nazro, vice president, and Ben C. Belt, chief geologist, Gulf Production Co.; David Donoghue, technical advisor to the Central Proration Committee of Texas; A. L. Freel, Fort Worth operator; F. M. Law, president, First National Bank of Houston; Paul Wagner, Houston manager of NATIONAL PETROLEUM NEWS; Joseph M. Weaver, States Oil Corp., Eastland; "Red" Knight, Ranger district drilling contractor; and others. Fred Angevine, New York attorney, is representing Mr. Simms and Elden McFarland heads the government interrogation.

* * *

New officers of the Humble Club, an inter-company organization of the Humble Oil & Refining Co., Houston, include F. R. Springer, president; H. S. Warner, vice president; C. C. Moore, treasurer; and F. M. Hughes, secretary. Directors are F. A. Dolin, M. F. Wallace, W. E. Deason, H. W. Page, J. M. Nagle, A. L. Young, R. C. Hadley, W. J. Barnes, W. C. Wiley, Wayne H. Haynes, O. Q. Lomax, E. P. Prass, R. V. Loftin, Clyde Brunson, C. A. Barnett, L. J. Droddy, R. L. Jeans, and Misses Edna Milam, M. B. Taylor and E. Vandegear.

* * *

Alex Muncie, formerly superintendent of the northwestern division, motor transport department, of the Pure Oil Co., has been transferred to Fort Worth as assistant superintendent in the Texas division.

* * *

E. Call Brown, long identified with the California Petroleum Corp., and allied Pacific Coast companies, before they passed into the hands of The Texas Co. of California, is now geologist of the McKeon Oil Co., at Los Angeles.

* * *

Dr. E. H. Wells has been named state geologist of New Mexico, succeeding C. G. (Glenn) Staley, now proration umpire in the Hobbs district of Lea county. Dr. Wells is president of the New Mexico School of Mines, at Socorro.

Dr. Wells is a native of Grand Forks, North Dakota, where he was born June 2, 1887, the son of Herbert Newton and Anna Burfield (Miller) Wells. He was educated in the high school at Grand Forks and in the University of North Dakota.

His first active work in geology and technology was as assistant engineer in the Daly W. mine at Park City, Utah, in 1909. He afterwards engaged in leasing work, from 1910-1912, for the Daly W. and Daly Judge mines. Later, he was engineer and draftsman for the Canadian Collieries, Ltd., Dunsmuir interests, at Cumberland, British Columbia, until 1914.

Then Dr. Wells became instructor in geology, minerology and other courses in the Tintic Mining High School, Eureka University, before taking up work in the West Side High School at Salt Lake City in 1916-1917. Later, he was assistant superintendent of the Austin-Dakota Mining Co., and geologist of the Chino Copper Co. His first connection with the New Mexico School of Mines was from 1917-1921 as professor of geology and minerology. He became president in 1921.

* * *

David Doyle, formerly with the Venezuela Gulf Oil Co., at Maracaibo, is now attached to the statistical department of the United Gas System, Houston. Other acquisitions to the department are A. F. Eddings from the Texas Power & Light Co., Dallas; H. T. Merritt, Standard Insurance Co., Denver; Scott Ossendeck, Louisiana Gas & Fuel Co., Shreveport.

* * *

George S. Norman is now manager of the lubricating oil department of Sinclair Refining Co., at Fort Worth, where he was transferred from New Orleans. He was succeeded as Louisiana division manager by A. D. Oden, whose transfer to New Orleans from Houston was previously reported.

* * *

E. D. McCabe, Jr., representing J. H. McEvoy & Co., Houston oil equipment manufacturers, now makes headquarters at Dallas for East Texas and Oklahoma territory. He formerly maintained headquarters at Oklahoma City.

San Joaquin Valley Deep Tests Are Being Watched

By Jack N. Westsmith

N. P. N. STAFF WRITER

LOS ANGELES, Feb. 13 OHIO OIL CO. last week was coring below 5655 feet in No. 1 Bloemer, Sec. 36, 27-20, in the North Belridge pool. The cores indicated gray sandy shale with no promise of oil sand.

Bloemer 1 is approximately one mile east and a little south of Belridge Oil Co.'s No. 15, discovery well of the deep sand and incidentally the only completion in the lower pay. It is considered a flank well and will undoubtedly have to go several hundred feet deeper before penetrating the productive Temblor. The discovery well was bottomed at 5474 feet and is now producing approximately 4500 barrels of 40 gravity oil and 25 million cubic feet of gas daily.

The Ohio well is thought to have a better chance of obtaining commercial production than any one of a group of deep zone projects in the neighborhood of Richfield Oil Co.'s Belridge 1, Sec. 22, 27-20.

Several months ago, when excitement was keen in the North Belridge play, the Richfield test contributed with reports of saturated oil sand at about 5650 feet. An initial water shut off at 5580 indicated water in the oil sand and the hole was deepened.

Deepening operations, however, failed to disclose the anticipated showings and development on offset projects were suspended until more definite information on the productiveness of these flank locations was available. After drilling to 6639 feet the Richfield well was plugged to 6404 feet and over the week the crew was bailing for a production test with the fluid level at approximately 4800 feet.

Universal Consolidated Oil Co.'s deep zone test of the Lost Hills pool, approximately 10 miles north and east of North Belridge, is drilling below 5110 feet in hard sand and shale, with a high head of water making progress difficult. Six recement jobs failed to cope with the flow of salt water encountered at about 4750 feet.

In the Semi-Tropic district, south and east of Lost Hills, Shell Oil Co. was headed for the first 10,000 foot hole in the world. Its Williams No. 1 passed 9650 feet over the week, 21 feet deeper than Standard Oil Co.'s Mascot No. 1, drilled near Taft.

In Kettleman Hills, the Petroleum Securities Co. was drilling at 6919 feet in Felix 1, formerly a fee-land producer on Sec. 35, 21-17, killed to deepen to lower oil zone. The well was initially completed in the upper Temblor gas zone for about 1500 barrels daily. The flow showed considerable decline and deepening operations were started soon after Felix 2, on the same section, was completed at 8100 feet.

Over the week, the Felix 2 registered a flow of 5359 barrels of 37.2 gravity oil and 5,360,000 cubic feet of gas daily. Tubing and casing pressures were 530 and 1050 pounds, respectively, under three beans of 42/64, 38/64 and 124/64.

The extremely low volume of gas produced per barrel of oil in this Kettleman Hills well is still a source of wonder to California engineers. At least two of the four wells comprising the discovery group are acknowledged to be flowing practically out of control, with gas-oil ratios ranging upward of 40,000 cubic feet per barrel of oil.

Huntington Beach, in the Los Angeles Basin, was the center of local interest. On the shoreline, a deep test being drilled by W. E. McCaslin was reported in difficulties with gas pressures at 7145 feet. Heavy equipment was being installed to avoid a blowout while the crew drilled ahead to a productive pay reported penetrated by Superior Oil Co. at about 7434 feet.

Water encroachment in the north and west play of the Playa del Rey pool, Los Angeles county, is rapidly drowning out townlot wells drilled to the deep zone. Production is still above 30,000 barrels daily with approximately 50 per cent going to major purchasing companies, and 50 per cent to independent refiners who are trucking the oil out of the field.

Search for a deeper producing horizon in the Elwood field is being made by the Barnsdall-Rio Grande interests in the Luton-Bell No. 14, on the northeast flank of the main Elwood structure. The well was completed early in the life of the field at about 3575 feet. Another deep test by the same combination is drilling below 4400 feet on the eastern flank.

Kettleman Hills Group Elect Officers

LOS ANGELES, Feb. 13.—Election of officers and directors of the Kettleman Hills North Dome Association the past week marked another step in the plan to place this important California field under immediate control.

The officers included, J. A. Brown, General Petroleum Corp., president; William Reinhardt, Shell Oil Co., vice president; Carl A. Beal, Belmont Investment Co., secretary-treasurer.

Directors elected were: R. A. Sperry, General Petroleum Corp.; R. E. Collom, Continental Oil Co.; A. H. Bell, Continental Oil Co.; C. P. Watson, Milham Exploration Co.; N. A. Rousselet, Milham Exploration Co.; William C. McDuffie, Pacific Western Oil Co.; Emil

Kluth, George F. Getty, Inc.; L. C. Decius, Associated Oil Co.

The very important position of manager of this association has not as yet been filled, but it is understood at least four men, important figures in the oil industry, are being given careful consideration.

Selection of the manager will be the principle subject of discussion at the first directors' meeting Feb. 17.

Receivers Are Named For Century Pet.

TULSA, Feb. 13.—Bob Bradshaw, of the International Supply Co., Tulsa and A. D. Spears, drilling contractor, Oklahoma City, were Thursday named receivers for the Century Petroleum Co., townlot operator in the Oklahoma City field. This is one of the concerns that financed its operations by the sale of units to the public. Roy S. Randerson, Oklahoma City, is president.

Suit asking for the receivership was filed by Nora W. Barton, Dallas, who alleged that she had bought $6,400 worth of units in the Century's wells, giving therefor 260 shares of other stock which she said had a value of $25,920. The difference of $19,520, she said, was to have been paid to her in cash; instead the company gave her additional units in that amount.

The company drilled five wells and acquired the old Coleman-Nelson refinery at West Tulsa, which it has operated part of the time over the past three months.

New Refinery Will Take Oil in Moore Co.

TULSA, Feb. 14.—Sunray Oil Co., of Tulsa, will supply the crude oil and market the refined products for the Apache Refining Co., which is soon to start construction of a refinery at Altman, Tex., in Moore county, in the Panhandle.

Sunray has three producing wells in the area, which is near the old A. D. Morton well drilled several years ago. Production from the field has not been exploited. The three wells have total potential of about 4000 barrels per day. No drilling is now under way. The best of the wells was the Jones A-1, in Sec. 164, T. & N. O. Survey, Block 3-T. It made 3000 barrels initial some weeks ago. Other wells are nearby.

The refinery will be located on the recently built line of the Rock Island railway which runs from Dalhart to Morse Junction, northern Hutchinson county, there connecting with the line to Liberal, Kans.

Because another town in Texas also goes by the name Altman, the name of the one in Moore county is being changed to Sunray. The Sunray company is laying a 6-inch line four miles from the producing wells to the railway and will build a loading rack. The refinery is to be of 5000 barrels capacity, skimming, and is being constructed in part of material from other plants.

Union Oil of California Nets 8.76% on Common in 1930

LOS ANGELES, Feb. 13

AFTER all charges, including depreciation, depletion and federal income taxes, had been deducted Union Oil Co. of California and owned companies showed a net profit for 1930 of $9,604,997. This is equivalent to $2.19 (8.76 per cent) a share on 4,386,070 shares of $25 par value common stock outstanding, and compares with $15,019,635 or $3.56 per share on 4,215,953 shares in 1929.

According to the balance sheet of Dec. 31, 1930, the company had total current assets of $70,075,582 of which $6,303,503 was cash, $7,000,000 United States government bonds and $8,831,835 other bonds and loans. Current liabilities were $8,247,102, giving a ratio of assets to liabilities of 8.4 to 1.

Inventories at the close of the year were carried at $41,175,294 after writing off depreciation. This figure compares with $44,678,912 at the end of 1929. Inventory estimates were dictated by prices that prevailed at the beginning of 1930, notwithstanding the increased cost of refining during the year. A total of $3,901,779 was written off on the inventories, of which amount $1,401,779 was deducted from the year's earnings and $2,500,000 from the profit and loss surplus.

Production of crude and natural gasoline, subject to royalties, during the year was 18,231,650 barrels, compared with 22,602,487 barrels the previous year. The average production of crude oil and natural gasoline from 482 wells at the end of the year was approximately 41,000 barrels daily. It was estimated 479 shut in wells were capable of producing an additional 55,000 barrels per day. At present the company is producing and purchasing 90,000 barrels of crude oil and natural gasoline daily.

General curtailment under which the company's annual production of crude and natural gasoline was reduced 4,370,837 barrels over the year together with higher prices paid for refinable crude from March to the end of the year and competition in marketing gasoline on the Pacific coast, were the factors that unfavorably affected profits during 1930.

Consolidated income accounts of 1930 and 1929 compare:

	1930	1929
Operating profit	*$23,796,862	$34,378,472
Expenses, taxes, etc.	3,667,427	3,695,239
Net earnings	$20,129,435	$30,683,233
Interest	1,021,791	533,970
Deprec., depley	9,502,647	15,129,628
Net profit	$9,604,997	$15,019,635

*After oil inventory reduction of $1,401,779.

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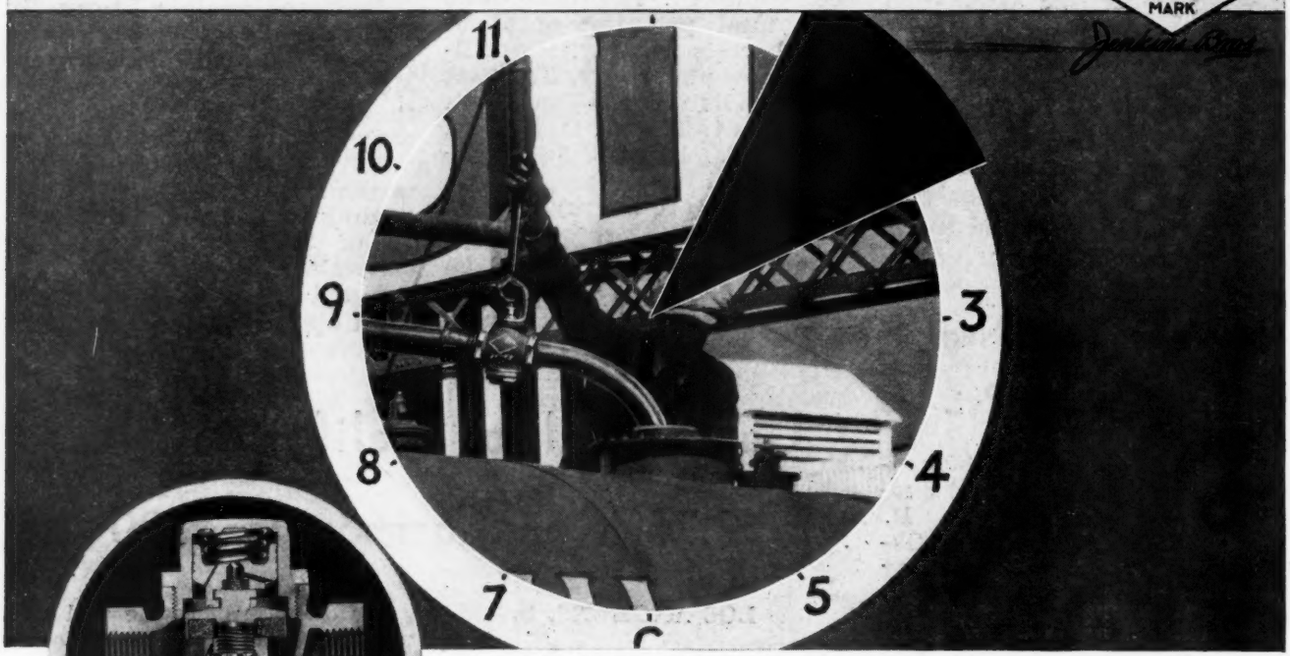

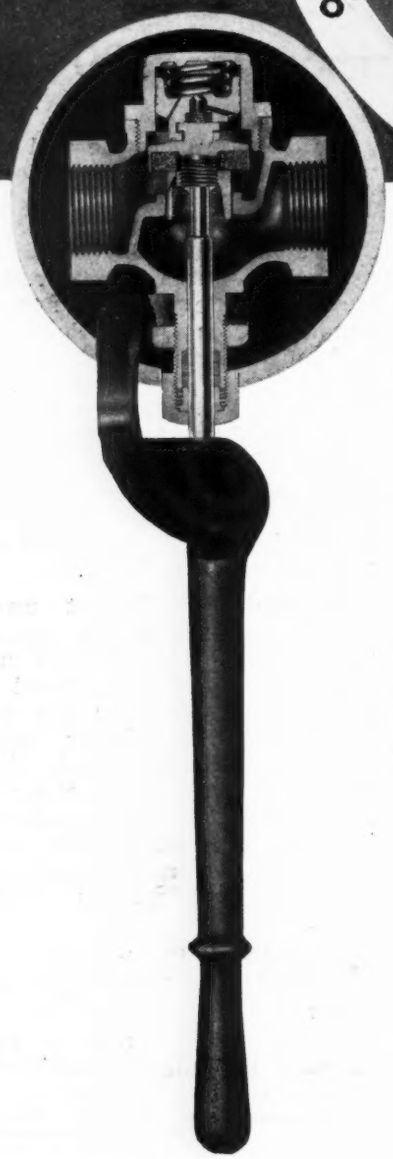

Fig. 720 Jenkins Bronze Rapid Action Valve in line for filling tank trucks; also large sectional view of valve showing details of construction.

Clipping minutes *off tank filling time*

SPEEDY performance of this Jenkins Bronze Rapid Action Valve is a real time saver in tank filling.

Lift the lever, and instantly a full flow is released into the tank. Tap down the lever, and the flow is shut off to the last drop.

A renewable disc of oil resisting composition, with which this Jenkins Valve is fitted when ordered for petroleum service, provides leak-proof contact at the valve seat.

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BRONZE IRON STEEL

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Since 1864

Independent Buyers Pay 32 to 40 Cents Per Barrel For East Texas Crude

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON, Feb. 13

FIXING of East Texas crude oil prices at 32 to 40 cents a barrel at the well, for an indeterminate period, appears to have been clinched by contracts made by Independent purchasers operating tank car loading racks and by the posting of a 40 cent price by one such concern.

Major purchasers, when and if they enter the territory, may not be expected to place a higher valuation on the 39.5 A.P.I. gravity gasoline crude than the producers set for it themselves in sales to Independent gathering systems.

No major company, however, has signified a present intention of purchasing "outside" oil in the territory. Arkansas Fuel Oil Co., will operate its proposed 70-mile pipeline from the Lathrop area, northwest of Longview, for benefit of controlled production to be utilized by the affiliated Louisiana Oil Refining Corp., at its Shreveport district refineries.

Humble Pipe Line Co. recently made its entry into the area contingent on orderly development, stipulating that under adequate proration practice its 13-mile spur from the Van-to-Louisiana boundary system would be extended from controlled properties in the Kilgore area to other parts of the Rusk county district.

Magnolia Pipe Line Co., which is surveying for 60 miles of system connecting East Texas with its Arkansas-Louisiana trunk to Beaumont, is reported negotiating for the handling of Gregg-Rusk district crude to the Gulf Coast in common carrier shipments, thereby returning to service some 17,500 barrels idle space in its 25,000-barrel system.

A gathering charge of about 10 cents a barrel, plus a pipeline tariff of 25 to 30 cents, and two and a half cents additional for tanker loadings would prevail for the handling of common carrier shipments through such a system as that of the Magnolia.

Meanwhile, actual gathering of crude from the Gregg-Rusk district is confined to the Panola County Pipe Line Co., operated by H. L. Hunt of El Dorado, Ark., and others, who posted the 40 cents price for oil purchased in the Joiner district of Rusk county; Inland Waterways Pipe Line Co., (W. A. Moncrief, F. Kirk Johnson and Deep Rock Oil Corp.), who are making deliveries to the Sinclair Texas Pipe Line Co., near Henderson; and the Rusk County Pipe Line Co. (Freeman W. Burford and others) who have announced construction of a second affiliated plant by the East Texas Refining Co., at Longview, supplementing the 6000-barrel plant previously decided on for Henderson.

Running of first oil through the Rusk County Pipe Line Co. system from the Joiner area to Henderson, where a 35-car loading rack has been completed, was announced Feb. 12. It was reported that until the East Texas Refining Co.'s first plant is completed the Burford interests will make crude sales on the open market.

Sinclair Texas Pipe Line Co., which is building a 40-car loading rack on the Overton-Henderson branch of the International-Great Northern railroad, plans a 6-inch gathering system to the Joiner area, where principal Rusk production is now found.

Shipments now handled by the Panola County Pipe Line Co., and the Inland Waterways Pipe Line Co., through loading racks of 25 and 15 cars capacity, respectively, are being consigned to the Crystal Oil Refining Co., at Shreveport, and the Sinclair Refining Co., at Houston. Sinclair is reported getting about 3900 barrels daily shipments through these sources.

Petroleum Marketing Co. operates a 25-car loading rack in the Henderson area, shipping about 4500 barrels daily from the B. J. Shaw and Consolidated Oil Co. wells, reputedly for account of the Warner-Quinlan Oil Co., which makes reshipment from the Gulf Coast in tanker quantities to Bayonne.

Production of exploited wells connected to the Panola County Pipe Line Co., gathering system, Feb. 11, was shown in field reports as follows:

Frank Foster et al & Deep Rock Oil Corp., No. 1 Ashby, 1120 barrels, 360 pounds pressure on casing, 40 pounds on tubing; Deep Rock Oil Corp., No. 2 Mayfield-Alford, well "dead;" H. L. Hunt and others, No. 1 Ashby, 435 barrels; Lide, Greer & Rowe, No. 1 Young, 1967 barrels pinched; Stroube & Stroube, No. 1 Frederick, 90 barrels pumping.

Tex-Lloyd Oil Co., No. 1 Camp, 698 barrels, flowing by heads; E. R. Tennant, Trustee, No. 3 Bradford, off production, standardizing; H. L. Hunt, No. 2 Ashby, 156 barrels, swabbing; Rusco Oil Co., No. 1 Bradford, off production, will pump; H. L. Hunt, No. 1 Bradford, off production, will pump.

Deep Rock Oil Corp. was producing 2958 barrels from No. 1 Mayfield-Alford, handled by the Inland Waterways Pipe Line Co. Haynes Bros. Drilling Co., No. 1 J. T. Brown, tested 2227 barrels in 13½ hours, tubing

pressure 60 pounds, before being closed in again, Shaw Oil Co. exploited 1662 barrels, tubing pressure 15 pounds, handled by Petroleum Marketing Co., and Consolidated Oil Co.'s No. 1 Camp made 2080 barrels handled through similar outlet.

The Gregg county well of Moncrief-Farrell and the Arkansas Fuel Oil Co., northwest of Longview, rated at 17,000 barrels initial production, remained shut in pending completion of a short line to tank car loading racks of the Arkansas Fuel Oil Co., which will use it for shipments to Shreveport until its proposed pipeline is built.

Humble Oil & Refining Co., whose Bateman-Crim well, near Kilgore, Rusk county, tested a maximum of 22,000 barrels daily, also awaits exploitation.

Scattered wells in the so-called Joiner area are unconnected, including a current completion of G. S. Anderson, a mile and a half northwest of original development, which at 3590 feet tested at the rate of 7000 barrels initial production.

The Mayfield-Alford well of Foster & Jeffreys, which Jan. 31 tested initial production of 4030 barrels daily, is now reported "dead."

Short flowing life of Joiner area wells is indicated by installation of a central pumping power by H. L. Hunt and others to handle the No. 1 Ashby and No. 1 Bradford wells and probably the Rusco Oil Co.'s No. 1 Bradford.

Sterling Thumbs Down On Murray Proposal

HOUSTON, Feb. 14.—Governor Ross S. Sterling of Texas is not in accord with Governor "Alfalfa Bill" Murray's outline of an oil proration statute proposing creation of a state department in charge of a single commissioner of petroleum.

Mr. Sterling wrote the Oklahoma governor that he feels such a statute "would not be a protection in this state. He also told Governor Murray he "sees no reason why the several states that are producing the greater proportion of oil in this country should not co-operate in order not to have the enormous over-production."

Governor Sterling said that Texas, through its railroad commission, would be glad to confer with the delegated authorities of other states with this object in view.

Independents Attack Gas/Oil Ratio

HOUSTON, Feb. 14.—Criticism of a proposed oil/gas ratio bill introduced in the legislature at Austin was voiced at committee hearings by Tom E. Cranfill of Dallas, president of the Independent Petroleum Association of Texas; J. H. Tricky of Fort Worth, representing individual Independents; Harry Pennington, San Antonio Independent; and Clarence R. Wharton, counsel for the Texon-Group One Companies, controlled by Continental Oil Co., one of the two operating interests developing the 2500-foot deep pay in the Big Lake field of Reagan county, West Texas.

Opponents of the bill contended that under the proposed statute operators would have to shut down oil wells if they could not get a market for their gas. The idea of the bill's opponents is that only such gas is wasted as may be taken out of the ground in excess of the quantity needed for lifting oil to the surface.

Statistical data presented at the hearing showed that with the 716,439 barrels of oil produced daily in Texas, as of Oct. 31, 1930, there also came above ground from the wells 2,045,-808,501 cubic feet of gas. Of this, it was shown, 461,753,000 cubic feet of raw gas was wasted.

The quantity of residue gas used daily for domestic and industrial purposes in Texas was placed at 92,438,000 cubic feet, the daily waste thereby being shown to approximate five times the quantity put to economic use.

Primarily, the purpose of the oil/gas ratio bill is to minimize waste through the curbing of gas production without utilization and also to bring about more economical production of petroleum through retention of gas energy for propulsion of oil from underground reservoirs.

California's Governor to Address Oil Men

LOS ANGELES, Feb. 13.—James Rolph, Jr. governor of California, will be principal speaker at the annual banquet of the California Oil and Gas Association, March 5 at the Biltmore Hotel.

Herbert R. Macmillan, president of the association, will make his annual address. J. R. Pemberton, Petroleum Securities Co., will be toastmaster and the intertainment will be under the auspices of the Wildcat committee—a group of the younger executives in the California industry.

Standard-Prairie Will Relieve Small Wells

TULSA, Feb. 14.—Partial relief for the small wells in several counties of Kansas, left without market Jan. 1 when the Prairie Oil & Gas Co. withdrew as a buyer, came the past week. While temporary in nature, it is a starting point toward solution of the problem that has caused much turmoil for the past two months.

As was reported in last week's issue, Standard Oil Co. of Indiana offered to buy 300,-000 barrels total to be gathered and delivered by Prairie lines to Wood River, Ill., at a rate not exceeding 6000 barrels per day. Prairie Oil & Gas Co. will act as the agent for the Indiana company.

The oil will be gathered in the counties of Elk, Labette, Allen, Neosho, Wilson, Miami, Woodson, Coffey, Franklin, Lynn, Montgomery, Bourbon, Chase, Cowley, Butler, Lyon and Marion. The Stanolind Pipe Line Co. is arranging to take oil from a large number of wells in Greenwood and Chautauqua counties, hence they are not included in the order which the Prairie will fill.

East Texas Leasing Extends North Along Old Sabine Shore Line

By Paul Wagner

N. P. N. STAFF WRITER

TYLER, Texas

BLOCKING of wildcat acreage along the inferred flank of the regional Sabine uplift in East Texas has been carried northerly into Harrison, Marion and Cass counties from the Gregg-Rusk producing district. To a lesser extent, attention has been paid to Nacogdoches county, which bounds Rusk on the south.

Morris, Smith and Upshur counties, which lie westerly from Cass, Marion, Harrison and Gregg, figure in the "play" in their eastern parts, where eventually the old shore line of Comanchean Cretaceous geological age may be found to wind in and out in manner such as to influence underground accumulations of petroleum.

Rusk-Gregg production comes from the Bingen series beds,[1] either Tokio (upper Bingen) or Woodbine (lower Bingen), down the west flank of the shore line.

Upon the steepness of dip of the oil-bearing horizon down the flank of the uplift may depend the possibility of westerly extensions of the producing zone. Only in the south end or Joiner area of the producing district is the width of possible production known. There production extends about two and a quarter miles west-southwest from the C. M. Joiner discovery well past the Frank Foster-Deep Rock production to a recent completion of "Bill" Rowe and others of Shreveport.

In Rusk county, 10 to 12 miles south of the Joiner area, Amerada Petroleum Co. has leased approximately 1000 acres scattered through the Jacob Roth, Gene B. Gauge, J. W. Bennett, J. A. McCune, William Williams and Henry Stockman surveys, paying from $5 to $20 an acre bonus.

Tulsa Oil & Gas Co. took a block of 4000 acres around the Henry Stockman survey, three miles northwest of Mount Enterprise, paying $1.50 an acre bonus and agreeing to start a test well in 90 days.

A 3700-foot test is to be started in 30 days by Griffith & Griffith of Terrell in consideration of their blocking 2000 acres eight miles west of Mount Enterprise, centering around the southwest part of the William Williams survey and the southeast part of the William Gauge survey.

Other Rusk county deals have been for smaller acreage adjacent to production or along the northerly trend from wells in the Joiner area to the Bateman discovery, nine miles north, for which Humble Oil & Refining Co. paid $1,500,000 cash and $600,000 contingent consideration.

Snowden & McSweeney Oil Co. paid $500 an acre cash and $500 in oil, when, if and as produced, for 39.7 acres out of the Laird tract, in the Isaac Ruddle survey; Tom E. Cranfill of Dallas, and associates, got a 10-acre tract north of the Lide and others well, in the M. J. Prue survey, for $750 cash and $750 in oil; and gave similar consideration for a 10-acre tract to the west.

TIDAL Oil Co. of Texas paid $25 an acre bonus for three leases totaling 150 acres in the Capps & Smith block, in the Jacob Roth survey, 10 miles south of the Joiner area; Brooks Van Horn of Shreveport sold the Selby Oil Co. of Tulsa 40 acres of the R. A. Motley tract, in the northwest corner of the M. Ybarbo survey, southeast of the Bateman well, for $300 an acre bonus.

East Texas Refining Co. (F. W. Burford and associates), in partnership with Reserve Petroleum Corp., got 160 acres of the J. A. Ball estate, William Chism survey, northwest of the Bateman well, for $32,000 cash and $44,000 out of oil produced.

Sinclair Oil & Gas Co.'s entry into the producing area was marked by its leasing from Standard Pipe & Supply Co. of two tracts totaling 85 acres, immediately north and south of the Deep Rock-Foster production in the Joiner area. Consideration was $98,770 cash and one-sixteenth overriding royalty. Sinclair also got a 63-acre tract from the Foster-Deep Rock interests for which $500 cash and $500 oil was the consideration.

NORTHWEST of the Bateman well, Sun Oil Co. took 306 acres of Tucker lands and 477.5 acres of W. P. Moore lands, all in the Peter Holmes survey, for $100 an acre bonus. Payment was $60 an acre cash and $40 deferred until settlement of litigation.

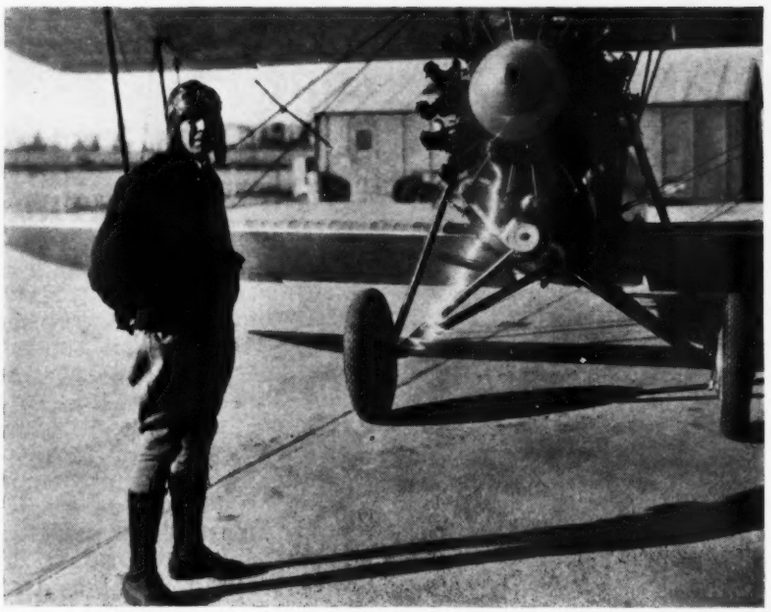
Completion of the Farrell-Moncrief and Arkansas Fuel Oil Co. well in the William Robinson survey, 18 miles north of the Bateman discovery and 27 miles north of the Joiner area, stimulated trading in Gregg county.

The almost solid character of acreage blocking around the well turned trading in Gregg county to other areas in the shore line trend, with greatest attention paid to large and compact leaseholds.

Humble Oil & Refining Co. took a one-fourth undivided interest in approximately 10,500 acres from D. H. Byrd, south and southwest of the Humble's Longview block, for which it was reported to have paid $140,-

[1] National Petroleum News, page 34, Feb. 4, 1931, and International Petroleum Technology, February, 1931.

80,000 Miles by Plane to Inspect Pipeline Laying



EIGHTY thousand miles have been traveled by airplane in a year and a half by William T. Graham, superintendent of field construction, A. O. Smith Corp., to keep in touch with welding crews working on pipelines in various parts of the country.

With the extensive laying of pipelines in recent years, most of their distance in unsettled regions where roads are bad and rail communication not of the best, Mr. Graham found it impossible to keep in touch with the work as he should, and resorted to airplane travel. On one occasion he spent four weeks making a 6000-mile trip, of which three were spent in riding.

He was already a licensed pilot and was accompanied by another pilot on his first few trips. In 18 months of flying in all kinds of weather, only one flight was abandoned entirely and flights have been delayed from four to 24 hours only eight times. The abandoned flight was in Wyoming last winter, when the temperature was 40 below zero. Mr. Graham lands his ship on and adjacent to pipeline rights-of-way whenever possible.

When working four welding crews in California, he found it possible to visit each gang every day. In a place near Kettleman Hills, with a gang working on each side of the mountain, it was possible to fly directly over the hills to accomplish in 10 minutes what would have taken four to five hours trip by automobile.

000 bonus. Gulf Production Co. owns an interest with Humble in that block.

Gulf took a one-half undivided interest in the D. H. Byrd 3000-acre block, centering around the town of Kilgore, for $92,000 cash. It also acquired various tracts northwest of the Bateman well and across the Rusk-Gregg boundary for which bonuses were from $11 to $40 an acre.

Simms Oil Co. of Dallas, assigned to Stanolind Oil & Gas Co., subsidiary of Standard Oil Co. of Indiana, a one-half interest in all its Gregg county leaseholds, totaling approximately 1000 acres, for $26,500. Simms acreage is scattered throughout the county.

Mid-Kansas Oil & Gas Co., subsidiary of Ohio Oil Co., which controls the major part of the Haynesville, Louisiana field, has spent in excess of $250,000 for checkerboard acreage in Rusk and Gregg counties, principally the last mentioned. Bonuses have been generally between $25 and $60 an acre.

Magnolia Petroleum Co. of Dallas, subsidiary of Standard Oil Co. of New York, also has been checkerboarding around the Farrell-Moncrief and Gulf blocks, one of the last mentioned being located in the southeastern corner of Upshur county.

Considerable acreage is being leased around the M. S. Hammond test on the Hamby tract, five miles northeast of the Farrell-Moncrief No. 1 Lathrop. Included are 87 acres in two tracts, taken by Danciger Oil & Refining Co., in the John Dixon and H. H. Kirsch surveys at $200 an acre bonus.

Roeser & Pendleton got an undivided one-half interest from Frank Foster and others in 192 acres located from an offsetting position to the Lathrop discovery a distance of one mile and a quarter away. Consideration was reported as $25,000 cash and $25,000 in oil.

The Burford interests also acquired one-fourth of the working interest, Frank Foster and associates retaining the other one-quarter. Consideration was not disclosed.

Shell Petroleum Corp. took "protection" from M. S. Hammond against the test drilling northeast of the Lathrop discovery, paying $4000 cash and additional small consideration on completion of the well to 3500 feet. The Shell spent in excess of $75,000 from three to six miles northwest of the Bateman well, paying from $25 to $60 bonus.

Before the Bateman well was tested the Shell took approximately 1500 acres north and south of it, then paying from $10 to $75 an acre bonus. Trading with fee owners afterward slackened, as farmers began asking as much as $2000 an acre cash and $2000 an acre in oil for leases one to two miles away.

In Cass county, Gibson & Johnson of Fort Worth assembled approximately 4000 acres in the David Frazier survey, three miles west of Avenger, for $1 an acre, obligating them-

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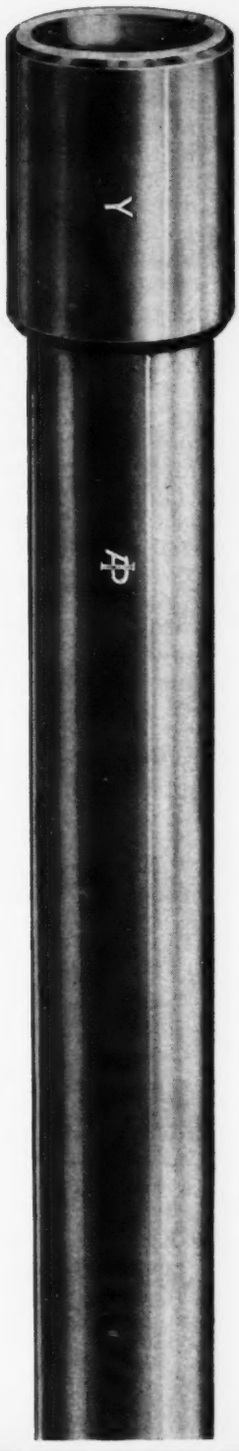

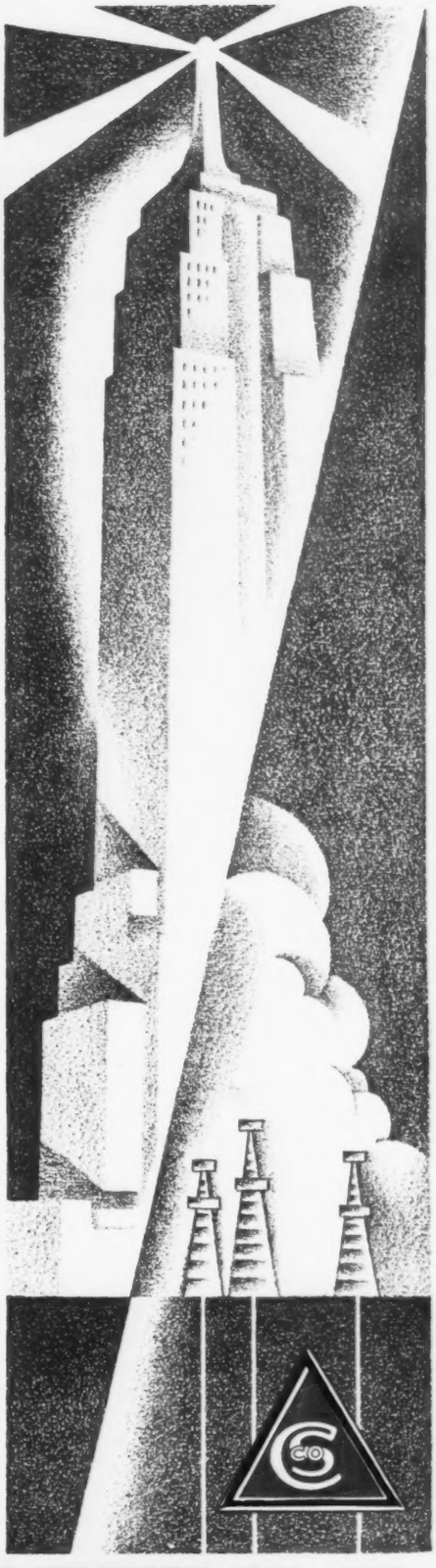

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selves to begin a 3500-foot test by March 1.

Between Avenger and Hughes Springs, Mid-Continent Oil & Gas Co., took 1000 acres at $1 to $3 an acre. Simms Oil Co. took 3000 acres centering one mile southeast of Bivens, on ten year term leases at $1 an acre, 50 cents rental.

Everett Drilling Co., of Wichita Falls, has 9000 acres scattered through the J. C. Walker, William P. Dixon, Daniel Stennett and L. Rice surveys, approximately six miles east of Hughes Springs, part of which was in consideration of a test to the Woodbine horizon; the rest being taken at $1 an acre.

EUGENE SMITH of San Antonio, supposedly representing the Witherspoon Oil Co., assembled approximately 5000 acres centering in the James Graham survey, east of Douglasville, for a Woodbine test by March 15.

John C. Rogers transferred to C. E. Murdock of El Dorado, Ark., 2500 acres checkerboarded through a 5000-acre block centering in the Evans Watson survey, west of Linden, for $1 an acre and a 3700-foot test in 60 days.

Rogers also sold 1600 acres checkerboarded in the K. A. Welborn survey to Messrs. Beene & Waller of Shreveport for $3 an acre. This is in the vicinity of the Rogers No. 1 Lanier drilling test, which has been shut down at 2275 feet.

Beene, Waller & Smitherman have taken over a block formerly held by Wesley Morse, which surrounds his Henderson location in the C. C. Bailey survey, five miles east of Avenger. After having the original leases rewritten the new owners have increased the block to approximately 9000 acres at $1 an acre and the further obligation to begin a Woodbine test.

Two miles east of Avenger, a block of approximately 3000 acres has been assembled by Ben Simon and others for $1 an acre and a Woodbine test in 60 days.

A well is to be started by March 1 on a 7000-acre block assembled by J. J. Keen of Shreveport in the B. Parker, A. J. Fowler, J. Cannon and James Coffee surveys, two miles northeast of Avenger.

J. K. Wadley, Texarkana lumberman, paid $1 to $2 an acre for approximately 7500 acres in southern Cass and Morris counties, northern Marion and northeastern Upshur. All are 10-year term leases.

In Marion county, Henry Rondeau has taken an additional block of 3000 acres adjoining the block he is now testing in the Wills survey, four miles north of Jefferson, where he paid $1 an acre and agreed to drill a Woodbine test. He has also acquired 4000 acres northwest of Jefferson and is assembling another in the John Logsden survey.

Simms Oil Co. has increased its checkerboard spread in the vicinity of the Decker and Lechner & Hubbard blocks in the northwestern part of Marion county to 6100 acres. Bonuses were $2 to $3 an acre earlier, but finally prices advanced to $5 an acre.

The Texas Co., Shell Petroleum Corp., and Sun Oil Co., also have been buying between Ore City and Jefferson, paying from $1 to $6 an acre.

IN HARRISON county, G. G. Nesbitt of Shreveport sold 4000 acres of his 6000-acre block in the Francisco Cavillo survey, seven miles northwest of Marshall, to unnamed interests for $2.50 an acre and a test well.

Roy Anderson of Shreveport sold a checkerboard spread of 1000 acres in his 6000-acre block centering in the Joseph Fields survey to Mid-Kansas Oil & Gas Co., for $5 an acre, and 2500 acres out of the same block to unnamed Oklahoma interests for $2.50 an acre and a test well.

Mid-Kansas also acquired 2000 acres of the Anheuser-Busch 5100-acre tract in the Benjamin Parker survey, north of Hallsville, for $5 an acre, and The Texas Co. leased 2983 acres extending northwest from Hallsville to the Marion county boundary for $4000 total.

Rowan & Nichols sold an undivided half interest in 1600 acres of their 6000-acre block in the E. A. Merchant survey to Tidal Oil Co. of Texas for $38,000, the sellers to drill a 3700-foot test on the Henry Pitts 150-acre tract. The Tidal also purchased from Henry Rondeau and others considerable acreage in the William Spencer, Joseph Dodge and W. J. Wills surveys at $10 an acre for five-year term leases.

Corona Petroleum Co. acquired 4000 acres centering around the Surr and Post surveys on 10-year term leases, 1800 acres comprising the Killingsworth estate.

West of Harleton, centering around the S. N. Hall survey and extending to the Benjamin Parker survey, William Hanigan and Joe Crump blocked 5000 acres at $1.50 an acre for 10-year term leases. They also took 1000 acres checkerboarded in the northwestern part of Harrison county.

S. D. Hunter of Shreveport has taken over the 16,000-acre block of the Shell Rock Petroleum Co., four miles east of Hallsville, where a test was drilled to 3568 feet and shut down. Hunter agreed to settle obligations previously incurred, drill the test to 4000 feet, if necessary, and allow the Shell Rock interests to retain scattered acreage in the block.

Northeast of Marshall seven miles, a total of 5172 acres was blocked by S. P. Hall of Marshall, centering around the Walton K. Payne survey. He assigned 3750 acres to O. K. Parkening of Tulsa, who is to start a 4000-foot test in 60 days.

Approximately 35,000 to 40,000 acres have been leased in the southern part of Morris county in the last three weeks, but details have not been assembled.

Oakite Products, Inc., 22 Thames St., New York, N. Y., will demonstrate cleaning methods for tanks and other equipment and parts of an oil producing plant in its booth at the Oil Equipment & Engineering Exposition to be held at Los Angeles, March 16 to 22. It will have a miniature production plant in operation for this purpose in its booth.

It will also show how to strip paint, how to clean small parts, waste and wiping rags and how to clean painted surfaces. Daily and special cleaning operations in the oil industry are explained in literature available at the booth or company headquarters.

ADVERTISING PAGES REMOVED

Conditioning Refinery Water

Benzidine Method for Determining Sulfates in Water; Limits of Hardness, Alkalinity Permissible in General Purpose Waters; Definition of pH Value; Chemical Reactions Involved in Water Treatment

Part 2

By Sidney Born*

THE determination of sulfates in boiler feed water is very important, both from the standpoint of control of concentration of solids, and of total alkalinity to sodium sulfate ratios for the prevention of embrittlement.

The ordinary laboratory method for determining sulfates is very tedious and long. The sulfates must be precipitated, filtered, washed, the filter paper burned off and the resultant precipitate weighed. Ordinarily, the total procedure requires at least ten or twelve hours.

Various rapid methods for determining sulfates have been developed which consist mainly of the use of sulfur photometers, hydrometers and conductivity apparatus. The photometer method or that of measuring the turbidity of a precipitated sulfate solution is not accurate for low concentrations of sulfates and depends somewhat upon the judgment of each particular operator.

The hydrometer is not accurate for concentrations of dissolved solids below 50 grains and is affected by organic matter. The conductivity method has a high initial cost and must be calibrated for each particular water.

The use of the benzidine[1] method for determining sulfates is not new. References to this method are made in most chemical analysis books, but only in a few cases has this method been adopted for checking sulfates in boiler feed water.

The benzidine method of determining sulfates is adaptable over a sulfate content range of any amount, and is not affected by soluble alumina or silica, or by the presence of organic matter. For rough routine control the percentage of error is rarely over three per cent. However, if sufficient care is taken in the procedure, the percentage of error often falls under 1 per cent.

[1]National Aluminate Corp., Chicago, Ill.

THE accompanying article is the second of a series of five prepared by Dr. Born. The third will appear in an early issue.

Procedure

1. Estimate, if possible, approximate amount of sodium sulfate and if between:

0-100 grains per gallon
use 58.3 cc water
100-200 grains per gallon
use 29.2 cc water
200-400 grains per gallon
use 14.6 cc.water

2. If using half or quarter sample of water make up to 58.3 cc with distilled water.

3. Place in a 250 cc Erlenmeyer flask or beaker and add 10.0 cc of benzidine solution and mix by giving whirling motion. The benzidine solution is made by dissolving 11.2 grains of benzidine hydrochloride in 400 cc of water and mixing with 100 cc or 5 per cent hydrochloric acid.

4. Filter off suspended solids discarding filtrate unless cloudy, in which case pass thru filter paper again. To tell if all sulfates have been precipitated, drop one drop of benzidine solution into clear filtrate. If solution turns cloudy, start procedure over with smaller sample of water.

5. Rinse emptied flask with approximately 25 to 50 cc of distilled water using the rinse water to wash the sulfate precipitate. This is done by first letting the original solution filter through COMPLETELY and then pouring the distilled water over the precipitate in the funnel in two or three equal proportions, allowing each application of water to COMPLETELY pass through before more is added.

6. Remove the filter paper with washed precipitate carefully from the funnel, place in original flask and add approximately 25 cc of distilled water.

7. Add two drops of phenolphthalein indicator and then N-0.14 (N/7) sodium hydroxide solution through a burette until a pink color results which will remain for at least ½ minute. Titration should be done by imparting a swirling motion to the flask during initial stages and then completing the operation by placing a rubber stopper in the flask and shaking after each addition of sodium hydrate soluton. This will insure breaking up the filter paper.

Calculations

The number of cc's of sodium hydroxide used multiplied by ten gives grains per gallon of sulfates present as sodium sulfate. If more than 10.0 cc's is required to get P reading, start procedure over with smaller

*Marathon Oil Co., Tulsa.

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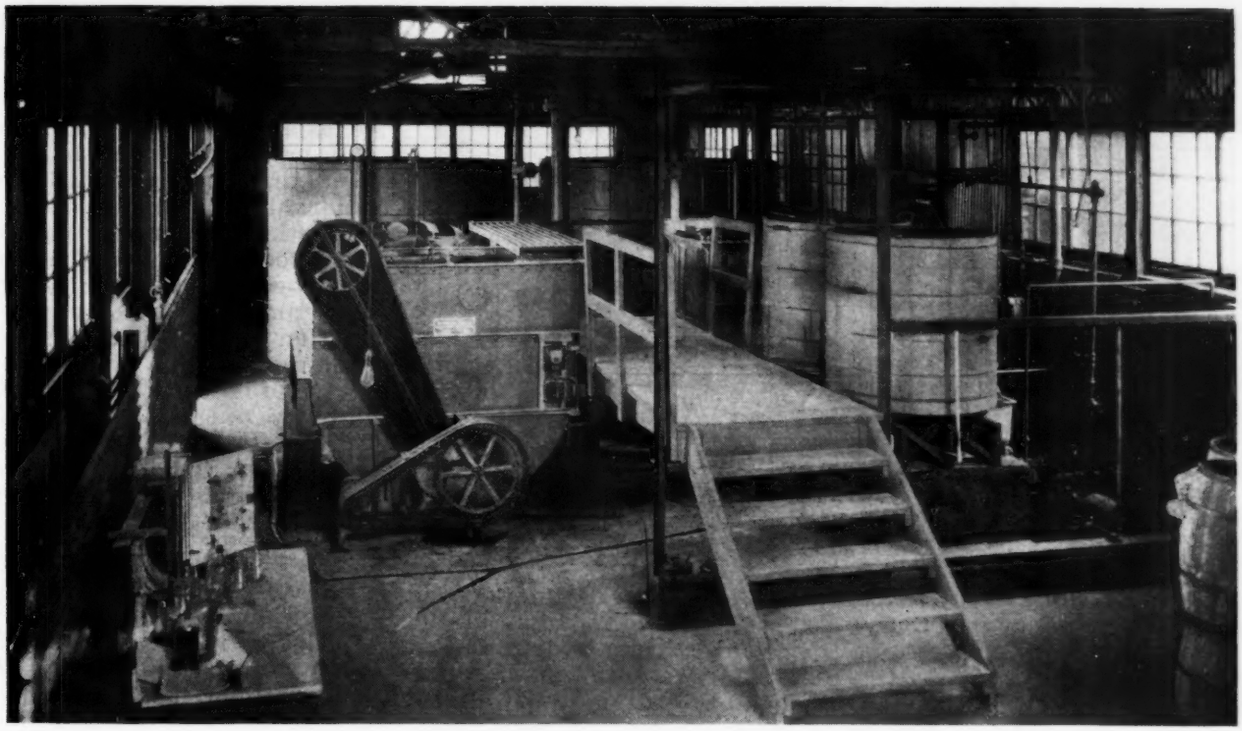

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sample. If ½ or ¼ sample is used be sure to multiply result by two or four respectively.

If water contains more than 400 grains per gallon of sodium sulfate use ¼ sample and 20 cc of benzidine solution instead of 10 cc. If titration is then more than 20 cc of sodium hydrate solution use 30 cc of benzidine and add enough distilled water to make total volume approximately 150 cc.

To obtain results in p. p. m., use 50 cc of water or fraction thereof, and multiply cc's of sodium hydrate solution used by 200.

If sodium sulfate content is less than 10 grains per gallon it is a good plan to use a double sample or 116.6 cc and divide results by 2.0. If a large number of titrations are to be made on waters of very low sulfate content then N-0.014 sodium hydroxide solution should be used in which case 1 cc will be equivalent to 1 grain of sodium sulfate.

Precaution

The benzidine method is surprisingly accurate and requires no excessive amount of care in making the determinations. However, there are a few points which tend to increase accuracy, especially where the total amount of sulfates in the water is very low.

Ordinarily it is not necessary to filter the boiler water when making a sulfate determination. However, it is a good plan to do so, especially if the amount of suspended solids is high. The presence of high suspended solids makes the filtering and washing of the benzidine sulfate precipitate more difficult by slowing up the rate of filtration and by increasing the necessary amount of wash water.

It is not necessary to cool the sample of boiler water before making these determinations. In fact, the benzidine sulfate precipitates more rapidly in hot solutions, and hot or warm solutions filter more easily.

If the sulfate content is very high, more wash water will be required. In washing the benzidine sulfate precipitate, pour the wash water around the upper side of the filter paper so that the filter paper as well as the white benzidine precipitate is washed. The benzidine solution is slightly acid and for this reason distilled water is used to wash out the acid.

General Notes on Testing, Etc.

1. Have all flasks labeled or arranged in such a manner that certain tests will be made only in certain flasks. The reason for this is too obvious to require explanation.

2. Make the tests regularly on the treated water, especially where the raw water is subject to changes.

3. Test each shipment of lime and soda ash. Lime is particularly liable to be of an inferior grade, thereby lessening the quality of the water softening process and increasing the cost.

4. Do not take samples of treated water until it has had plenty of time for sedimentation. Filter all samples that are very turbid.

The strength of the solutions used in the foregoing methods is as follows:

Sulfuric acid	N/29.2
Caustic soda	N/29.2
Silver nitrate contains 4.965 grams per liter.	

Phenolphthalein Indicator: Dissolve 3.5 grams in 650 cc grain alcohol and make up to 1000 cc with distilled water.

Methyl Orange: Dissolve 1 gram in 1000 cc of distilled water.

Standard Soap Solution: This is made by diluting each 100 cc of the "Stock Soap Solution" with 17 cc of a 50 per cent so-

CHART SHOWING RELATIONS BETWEEN pH VALUE AND HYDROGEN AND HYDROXYL ION CONCENTRATION.

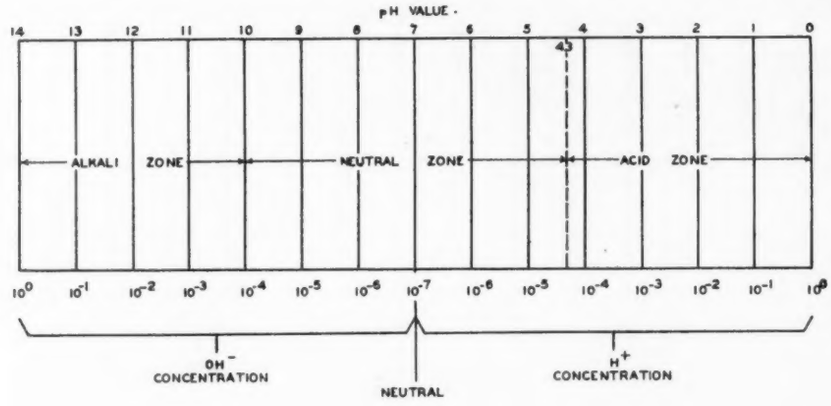

pH VALUE.
14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
4.3
ALKALI ZONE
NEUTRAL ZONE
ACID ZONE
10^0 10^{-1} 10^{-2} 10^{-3} 10^{-4} 10^{-5} 10^{-6} 10^{-7} 10^{-8} 10^{-5} 10^{-4} 10^{-3} 10^{-2} 10^{-1} 10^0
OH^- CONCENTRATION
NEUTRAL
H^+ CONCENTRATION

Fig. 1

lution of alcohol and water and adding just enough Eosine (Bromeosin) to give it a fluorescent color. The *stock soap* solution is made up as follows: Dissolve 13 grams sodium oleate in 1000 cc of a 50 per cent solution of alcohol and water and standardize so that each cubic centimeter is equal to .001 grams of calcium carbonate.

When water is properly treated the hardness should not exceed the following figures:

For zeolite treatment	.2
For hot process lime soda softeners	1.5
For cold process lime soda softeners	3.0

The alkalinity and causticity should have a ratio of approximately 2.6 to 1.8.

Table No. 1 shows various conditions which may be encountered and suggestions for the correction of the treatment employed.

Hydrated lime is preferably used for water softening and should contain not less than 90 per cent calcium hydroxide and should not contain more than 3 per cent magnesium salts.

Soda ash used for water softening should be specified as 58 per cent soda ash, which is equivalent to a sodium carbonate content of 99.1 per cent.

$_p$H Value

As we shall use the term $_p$H value rather frequently in these articles, we shall attempt very briefly to define this term.

The $_p$H value is a mathematical expression which represents the logarithm of the reciprocal of the hydrogen ion concentration. Different acids and different alkalis do not ionize to the same extent. An illustration of this follows: If we take a molar solution of hydrochloric acid and a molar solution of acetic acid, we find that the hydrochloric acid has a much more vigorous action than the acetic acid both on metals, the human skin and other substances. This is due to the fact that the hydrochloric acid ionizes to a greater extent, and the extent of this ionization can be expressed by the $_p$H value.

It must be clearly borne in mind that the quantitative relationship of a molar solution of acetic and a molar solution of hydrochloric acid is the same. Both solutions require the same amount of molar caustic solution for neutralization. Thus the $_p$H value expresses the degree of ionization and not the quantity of material present. The relationship between $_p$H values H & OH ion concentration and acidity and alkalinity are shown in Fig. 1.

Table No. 1

Table of Treatment Characteristics

Examples	Hardness	Alkalinity	Causticity	Trouble
1	1.5	2.6	1.8	Correct
2	1.0	8.0	5.5	Too much lime and soda ash
3	6.0	2.0	0.2	Not enough lime and soda ash
4	6.5	8.3	6.0	Too much lime
5	4.0	6.0	0.5	Not enough lime
6	1.0	6.3	3.6	Too much soda ash
7	4.5	2.7	1.8	Not enough soda ash
8	5.0	3.0	2.6	Too much lime and not enough soda ash
9	4.0	7.0	2.8	Not enough lime and too much soda ash

Chemical Reactions Involved in Water Conditioning

The chemicals most commonly used to remove scale forming material from natural waters are lime (calcium hydroxide) and soda ash (sodium carbonate) or a combination of the two.

In order to understand the mechanism of the scale removal, we shall consider the reactions which take place when boiler feed water is treated with a mixture of lime and soda ash.

Any calcium bicarbonate which is present will react with calcium hydroxide, forming calcium carbonate, which is very slightly soluble and precipitates out. This is shown by the following reaction:

$$Ca(HCO_3)_2 + Ca(OH_2) = \underline{\underline{2CaCO_3}} + 2H_2O$$

If calcium sulfate is present, sodium carbonate will react with it, forming calcium carbonate, which precipitates out. Sodium sulfate is a soluble neutral salt which will not cause scale or corrosion and can be removed by periodically blowing off the boiler. This reaction is shown below.

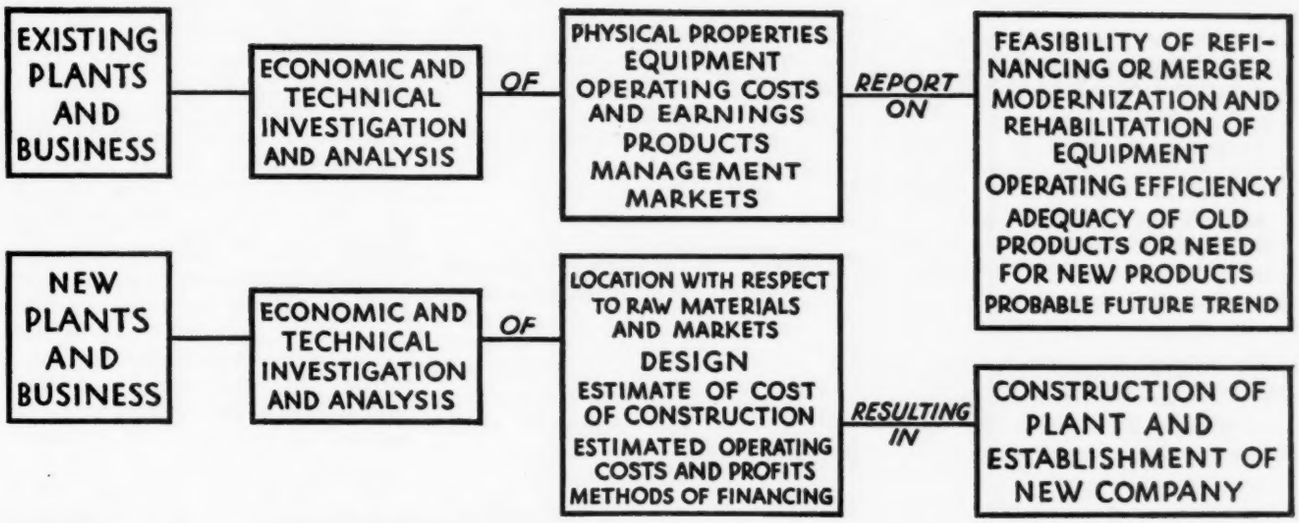
$$CaSO_4 + Na_2CO_3 = \underline{\underline{CaCO_3}} + Na_2SO_4$$

If calcium chloride or nitrate is present, it will react with the sodium carbonate, calcium carbonate being precipitated and the corresponding sodium salt remaining in the water. This is shown by the following reactions:

$$CaCl_2 + Na_2CO_3 = \underline{\underline{CaCO_3}} + 2NaCl$$

$$Ca(NO_3)_2 + Na_2CO_3 = \underline{\underline{CaCO_3}} + 2NaNO_3$$

If magnesium bicarbonate is present in the water, a lime treatment is necessary, the magnesium bicarbonate react-



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ing with the lime to form calcium carbonate and magnesium hydroxide. Both the magnesium hydroxide and calcium carbonate are only slightly soluble and are therefore precipitated.

$$Mg(HCO_3)_2 + 2Ca(OH)_2 = \underline{\underline{Mg(OH)_2}} + \underline{\underline{2CaCO_3}} + 2H_2O$$

If magnesium sulfate is present, a double treatment with lime and sodium carbonate is necessary, the magnesium sulfate being converted to magnesium hydroxide and the calcium sulfate which forms as a result of this reaction must then be removed with sodium carbonate as outlined above. These reactions are shown herewith.

$$MgSO_4 + Ca(OH)_2 = \underline{\underline{Mg(OH)_2}} + CaSO_4$$

$$CaSO_4 + Na_2CO_3 = \underline{\underline{CaCO_3}} + Na_2SO_4$$

The treatment of magnesium chloride and nitrates is illustrated by the following reactions.

$$MgCl_2 + Ca(OH)_2 = \underline{\underline{Mg(OH)_2}} + CaCl_2$$

$$CaCl_2 + Na_2CO_3 = \underline{\underline{CaCO_3}} + 2NaCl$$

By a study of these reactions, it can readily be seen that if the analysis of the water is known, the amount of soda ash and lime necessary to precipitate the scale forming salts can readily be calculated.

In order to simplify these calculations we give herewith tables showing the number of pounds of soda ash and lime required to treat various amounts of impurities, the impurities being expressed as grains per gallon.

To illustrate the use of these tables, let us assume we have a water containing 10 grains of calcium bicarbonate and 5 grains of magnesium sulfate per gallon. By referring to the tables we find that 10 grains of calcium bicarbonate requires .724 pounds of lime per thousand gallons, and 5 grains of magnesium sulfate require .488 pounds of lime and .630 pounds of soda ash per thousand gallons. Intermediate values not given in the table can be found by interpolation.

As it is often necessary to know the amount of sludge formed by the softening reaction, the following table will be useful for this purpose. Its use is illustrated as follows: If we have a water containing 10 grains of magnesium chloride

Table 2

Showing Pounds of Lime ($Ca[OH]_2$)* Required Per Thousand Gallons of Water

GRAINS PER GAL. HARDNESS	CALCIUM BICARBONATE	CALCIUM CARBONATE	MAGNESIUM CHLORIDE	MAGNESIUM SULFATE	MAGNESIUM NITRATE	MAGNESIUM BICARBONATE
5	.362	.587	.616	.488	.396	.803
10	.724	1.174	1.232	.976	.792	1.606
15	1.086	1.761	1.848	1.464	1.188	2.409
20	1.448	2.348	2.464	1.952	1.584	3.212
25	1.810	2.935	3.080	2.440	1.980	4.015
30	2.172	3.522	3.696	2.928	2.376	4.818

*Based on $Ca(OH)_2$ content of 90%.

Table 3

Showing Pounds of Soda Ash (Na_2Co_3) Required Per Thousand Gallons of Water

GRAINS PER GAL. HARDNESS	CALCIUM NITRATE	CALCIUM SULFATE	CALCIUM CHLORIDE	MAGNESIUM SULFATE	MAGNESIUM CHLORIDE	MAGNESIUM NITRATE	SULFURIC ACID
5	.462	.556	.682	.630	.795	.510	.772
10	.924	1.112	1.364	1.260	1.590	1.020	1.544
15	1.386	1.668	2.046	1.890	2.385	1.530	2.316
20	1.848	2.224	2.728	2.520	3.180	2.040	3.088
25	2.310	2.780	3.410	3.150	3.975	2.550	3.860
30	2.772	3.336	4.092	3.780	4.770	3.060	4.632

Table 4

Showing Pounds of Sludge Formed Per Thousand Gallons of Water in Lime Soda Ash Softener

GRAINS PER GAL. HARDNESS	CALCIUM BICARBONATE	MAGNESIUM CHLORIDE	CALCIUM CHLORIDE	CALCIUM SULFATE	MAGNESIUM BICARBONATE	MAGNESIUM SULFATE
5	.89	1.19	.64	.53	1.31	.94
10	1.78	2.38	1.28	1.06	2.62	1.88
15	2.67	3.57	1.92	1.59	3.93	2.82
20	3.56	4.76	2.56	2.12	5.24	3.76
25	4.45	5.95	3.20	2.65	6.55	4.70
30	5.34	7.14	3.84	3.18	7.86	5.64

and 15 grains of calcium sulfate, we would have a total sludge content of 2.38 plus 1.59, or 3.97 pounds per thousand gallons of water treated.

Caustic soda (Sodium Hydroxide) is sometimes used to remove scale forming materials but this method is only applicable when the amount of calcium and magnesium bicarbonates are small in amount. If larger quantities of these bicarbonates are present, an excessive amount of sodium carbonate is formed by the reaction.

When calcium bicarbonate is treated with sodium hydroxide, calcium carbonate and sodium carbonate are produced by the reaction. Calcium carbonate being insoluble, is precipitated and the sodium carbonate left in solution will precipitate any calcium salts present, as sulfates, nitrates, or chlorides. These reactions are illustrated by the following equations.

$$\underline{\underline{Ca(HCO_3)_2}} + 2NaOH = \underline{\underline{CaCO_3}} + Na_2CO_3 + 2H_2O$$

$$CaSO_4 + Na_2CO_3 = \underline{\underline{CaCO_3}} + Na_2SO_4$$

$$CaCl_2 + Na_2CO_3 = \underline{\underline{CaCO_3}} + 2NaCl$$

$$Ca(NO_3)_2 + Na_2CO_3 = \underline{\underline{CaCO_3}} + 2NaNO_3$$

Magnesium bicarbonate reacts similarly with the exception that insoluble magnesium hydrate is formed and the sodium carbonate reacts with any magnesium chlorides, nitrates or sulfates left in the water.

Another chemical method of treatment which is sometimes used is the so-called "Lime-Barium" method. In this method a saturated solution of calcium hydroxide is mixed with the water to be treated, the calcium hydroxide reacting with the bicarbonate to form calcium carbonate which is precipitated.

After this reaction has been completed the water is pumped through a layer of barium carbonate. Barium carbonate reacts with any sulfates present, such as calcium sulfates or sodium sulfate, the calcium sulfate forming calcium carbonate and the barium carbonate forming the insoluble barium sulfate. Both barium sulfate and calcium carbonate being insoluble are precipitated.

In case of sodium sulfate, the barium carbonate reacts with

(*Continued on Page* 99)

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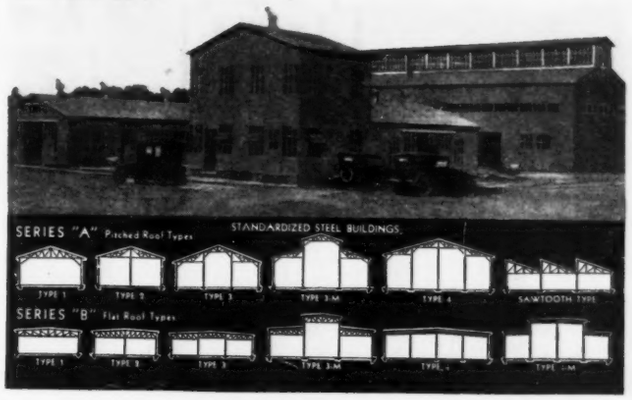

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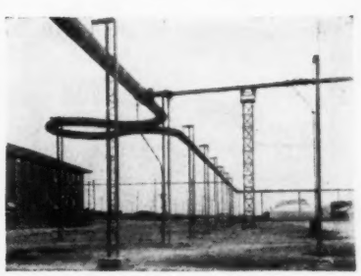

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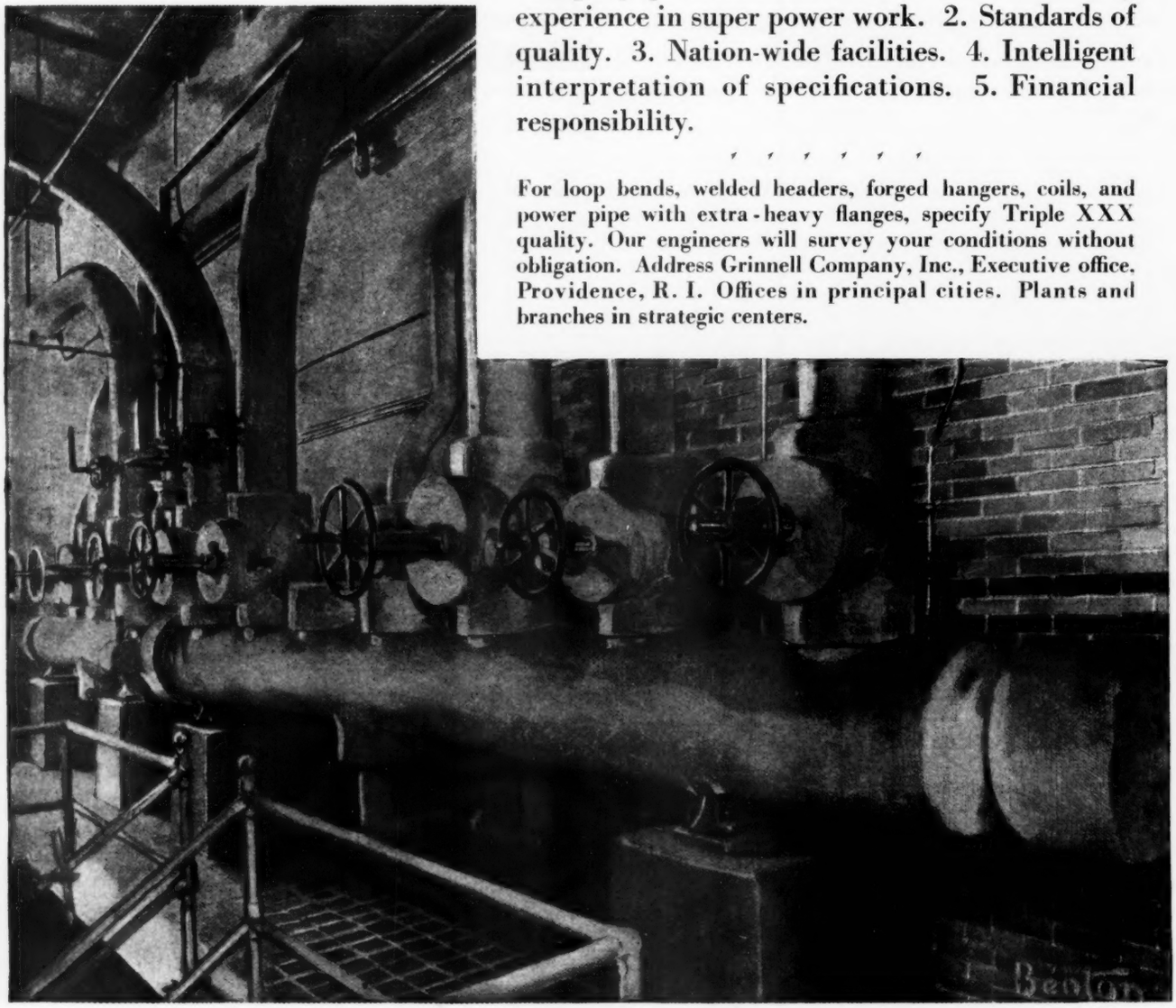

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Action of SO_2 on Mineral Oils

Pioneer Development of Sulfur Dioxide Process; Details of Equipment in Edeleanu Plant; Resume of Literature on the Process

By Arch L. Foster
N. P. N. STAFF WRITER

Part 1

THE adoption of the Edeleanu sulfur dioxide process for refining lubricating oil distillates, by the Tide Water Oil Co., and the installation in 1929 of a 2100-barrel plant in its Bayonne, N. J., refinery was the result of intensive study by company technologists of the various processes in existence for the production of lubricants of the desired qualities from the crudes refined by the company at this plant.

The plant is now operating practically at capacity, producing lubricants from Mid-Continent and Pennsylvania crudes. The distillates refined by this unique process are obtained from the crude by vacuum distillation in modern vacuum pipe stills with fractionating equipment which is fast becoming familiar to refiner and layman alike all over the country.

The claims for superiority made for the oils by this process are several, and involve those properties known by technologists to determine the value of a lubricant for use in the equipment for which the oil is manufactured. According to those best acquainted with the results of SO_2 refining, supported by a considerable amount of laboratory and service data which has been obtained by different investigators on the subject, lubricants manufactured in this way have as flat, or flatter, viscosity-temperature curve than when prepared from the same raw material by most other processes.

Due to the selective solvent action of the sulfur dioxide, those types of hydrocarbons found in lubricating distillate or residue most susceptible to oxidation and decomposition in use, such as aromatics and olefines, are practically completely removed from the distillate during refining, leaving untouched the more paraffinic and naphthenic compounds of the type which form the major portion of lubricants generally considered to be the most serviceable and efficient.

Sulfur is removed in great part by the process, whether in molecular form or in compounds, thus eliminating a larger percentage of compounds which are least stable in service, the lubricating value of which are for most purposes generally considered to be doubtful or non-existent.

Flash, fire, acidity, carbon residue, steam emulsion number, oxidation number, saponification number—all have been shown to be improved by this method which depends on physical solution rather that chemical treatment, and laboratory data in support of these claims are included in this article.

The Edeleanu process has been well known for several years in its adaptation to treating light oils such as kerosine distillates and is still used in several refineries in this coun-

THE accompanying article is the first of a series of three. Parts 2 and 3 will give details of operations of a SO_2 continuous treating plant, operating conditions, temperatures and concentrations with flow diagrams. Effects of the process on viscosity, carbon residue, sulfur, oxidation and other properties of oils and show what variations may be effected by variation of solvent percentages, temperatures and other process conditions. Part 2 will appear in an early issue.

Fig. 1—Lubricating oil plant for manufacture of lubricants by sulfur dioxide process, Tidewater Oil Co., Bayonne, N. J.

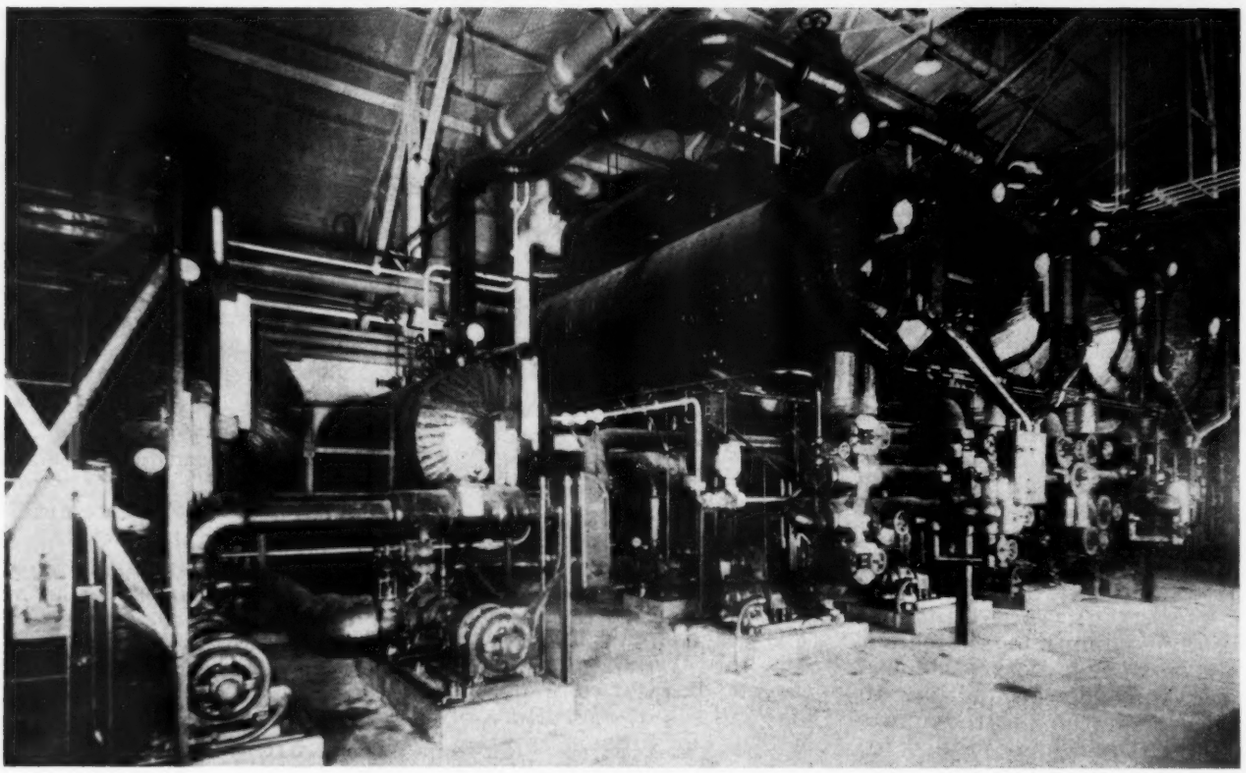


Fig. 2—Separators in Edeleanu plant, where extract and raffinate are separated by settling in a continuous process

try, and in many abroad, for this purpose. It is only comparatively recently that the details of operation of the process have been developed for application to the refining of heavier distillates for purposes other than production of motor fuels.

A large amount of data is available in the literature in explanation of the process on light oils, but comparatively few papers have been published setting forth the details of operation, and the results obtained from lubricating distillates, especially in American practice. During the last three years, however, fairly comprehensive articles have been published in three journals which outline details of the process on heavy oils, accompanied by data on the result obtained.[12, 13, 15].

The pioneer in the development of the process as applied to American practice in lubricating oil treatment was the Associated Oil Co. of California, the western unit of the Tide Water-Associated Oil Co. More than three years ago this company had installed a large unit for processing lubricating distillates from western oils, and in 1927, when the writer had occasion to see the plant, it was already in successful operation.

This company had also installed a "barrel-size" experimental and pilot plant, with which research work as well as control of the main plant was being carried on. So far as is known, the details of the results obtained at the Associated plant have not been published, but oils manufactured by the process have been on the market for three years or more, and tests on them have been rather exhaustive, both in the chemical laboratory and in competitive service operations under actual working conditions.

As the result of a large amount of research and operating data obtained at the California plant on the properties of SO_2 refined lubricating oils, the Tide Water Oil Co., the eastern unit of Tide Water-Associated, decided to build a large-scale Edeleanu plant for use in processing paraffine base oils, to supplement its western plant which is used chiefly on naphthene base oils.

The present article includes a resume of a portion of the literature on the subject, details of the operation of the Bayonne plant, and considerable data collected in the Tide Water laboratories regarding the characteristics of the products obtained, the influence of variation of different factors on the final product, and some comparison of representative data on oils manufactured by this and older methods, such as acid treatment. Discussion is included regarding the significance of the various factors which form a part of the process, but obviously time and space for such discussion is limited.

The purpose of the article is to acquaint the technical and semi-technical men with as many significant details as possible regarding the operation of the process, its costs, the effect on the raw material of such treatment, the advantages and disadvantages of the method, and the nature, and as far as possible the high quality of the finished product.

[12]Edeleanu Sulfur Dioxide Process Used In Treating Lubricating Oils, R. Plank; NATIONAL PETROLEUM NEWS, **20**, No. 46, p. 63; Chem. Abs. **23**, p. 2287 (1929).

[13]Liquid Sulfur Dioxide in Refining, R. L. Brandt; O. & G. J. **27**, No. 42, p. 119 (1929); Chem. Abs. **23**, p. 3337 (1929).

[15]The Edeleanu Process For Refining Petroleum, R. L. Brandt; Ind. Eng. Chem. **22**, p. 218 (1930); Chem. Abs. **24**, 1962 (1930).

Plant Equipment

The essential equipment forming the lubricating oil treating plant at Bayonne consists of four horizontal cylindrical separators, each surmounted by a horizontal mixing drum, as shown in Fig. 2; heat exchangers used for dehydrating distillate previous to treating; a heat exchanger system shown in Fig. 3 and the sulfur dioxide dehydrator in Fig. 4. Three evaporators, shown in Fig. 5 remove SO_2 from the raffinate, six evaporators in Fig. 6 recover the sulfur dioxide from the extracted impurities. In addition numerous pumps, steam jets, coolers, condensers and tanks are required to complete the installation.

Automatic and hand control instruments installed on the equipment enable the operator to direct the operations and to know exactly the situation in every part of the plant. A centrally located board, Fig. 7, permitting control from a central point, is desirable especially in emergency, or during starting or stopping of the unit.

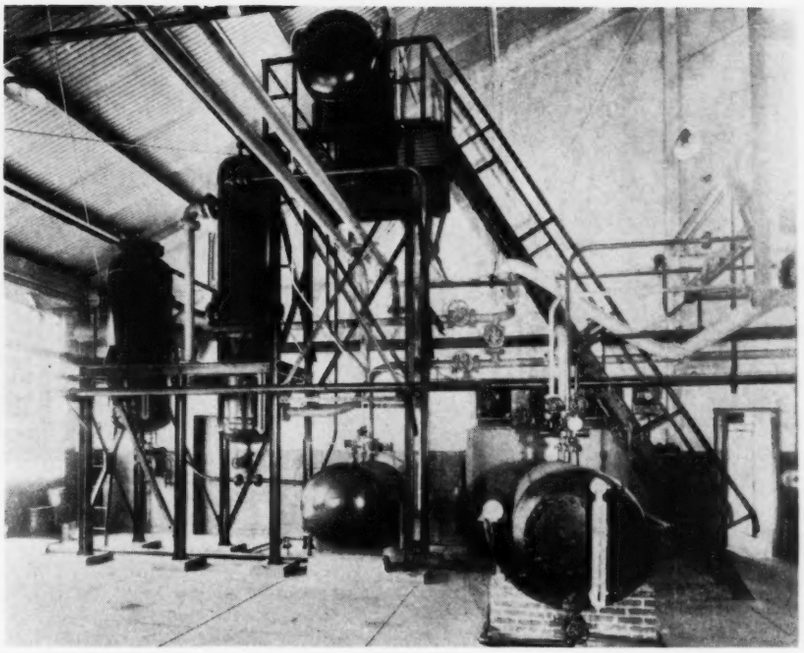


Fig. 4—Dehydrating plant, where distillate is treated before entering SO_2 treating plant

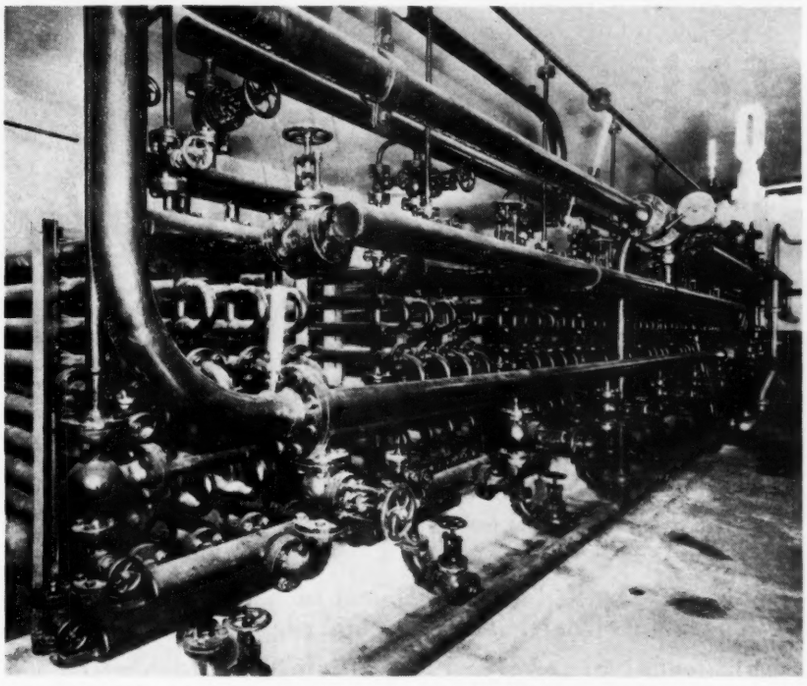


Fig. 3—Heat exchanger, where incoming distillate is cooled by counter-flow exchange with cold SO_2 solution

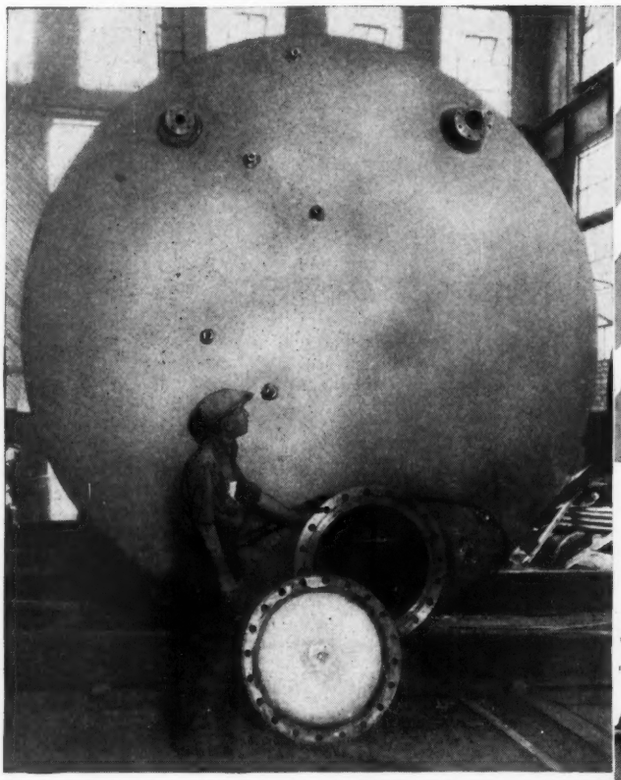
The four separator tanks are horizontal cylinders shown in Fig. 2, heavily insulated with block work covered with bituminous material. The small mixers are situated on top of these separators. Sight glasses are fitted to one end of the separators for observing the level of the layers of raffinate and of extract in the tank; indicating dial thermometers show temperatures in each separator. Outflow of the two streams is regulated manually from the domes shown at the end of the separators.

The raffinate, or refined oil, evaporators are three in number, and are provided with steam heaters. On account of the large percentage of SO_2 in the extract solution six evaporators are provided for handling this part of the process, the first three being arranged in triple-effect for maximum heat economy.

In addition to these evaporators, preheaters and precoolers are provided for the maximum of heat exchange for sulfur dioxide and distillate passing into the various stages of the process, which will be discussed in more detail under operation of the plant.

Development and Theory of the Process

Research work which has finally resulted in the Edeleanu SO_2 process as we now know it, was started in the first decade of the present century by Dr. L. Edeleanu, in an endeavor to apply the peculiar solvent properties of liquid SO_2 to the refining of petroleum distillates. Discoveries of petroleums of different characteristics from those first obtained in Pennsylvania, which gave difficulties in refining with the methods then in use, chiefly sulfuric acid and caustic soda, had induced investigators to undertake the study of the problems to produce desirable materials from these crudes containing comparatively large amounts of sulfur, nitrogenous compounds, asphaltic hydrocarbons, "carboids," and other substances deleterious to



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The first work was done on kerosine, to eliminate the caking, smoking and odors which detracted from the value of this material as an illuminant. It was this phase of the use of SO_2 which was developed first as a commercial success, and which has been adopted widely, as a means of treating kerosine and other light distillate products, by the refining industry. Sulfur dioxide shows a remarkable selectivity in dissolving different types of hydrocarbons and compounds found in petroleum, and it is this selectivity which is utilized in petroleum refining.

The first general discussion of the process in the literature was that given by Engler and Ubbelohde[1] in 1913, in which these well known technologists presented in considerable detail the results of an investigation of the use of this new solvent for purifying petroleum light distillates. Included in this article is an estimate of the cost of refining by the new method, which the authors placed at 0.436 marks per 100 kilograms, equivalent to approximately 13.5 cents per barrel of kerosine. This estimate was, of course, representative of that date under European conditions.

As will be shown later under the discussion of the results obtained in SO_2 treating, under the proper conditions of temperature and concentration, the liquid sulfur dioxide will practically completely dissolve aromatic and unsaturated hydrocarbons in the presence of the paraffin series. It shows a high selectivity as well for some naphthenic hydrocarbons, apparently for nitrogenous compounds, as well as asphaltic maerials and in great measure for organic sulfur compounds, removing most or all of these last substances, leaving behind the paraffin and most of the naphthene series.

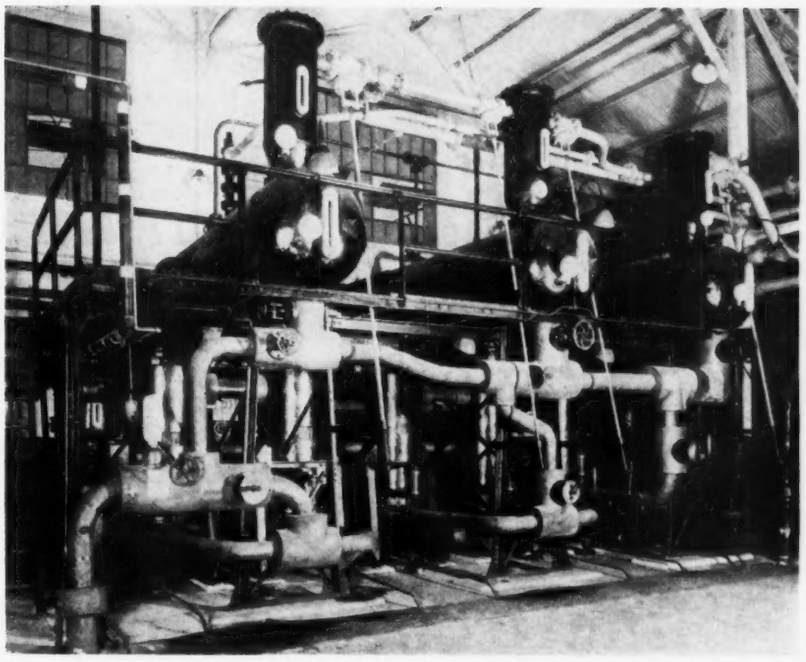

Fig. 5—Evaporators, where SO_2 is removed from raffinate (refined oil)

In an article published in 1914, Dr. L. Edeleanu[2] claimed an exact separation of two hydrocarbon series in a special experimental apparatus[3] which was built on the principles adopted for the batch type of plant first employed for the

[1]Edeleanu Process For Refining Petroleum With SO_2; Engler and Ubbelohde, Z. angew. Chem., **26**, Aufsatz No. 27, p. 177. Chem. Abs. **7**, 2299 (1913).

[2]Separation of Hydrocarbons By Liquid SO_2, L. Edeleanu; Petroleum **9**, p. 862, (1914); Bull. Am. Inst. M. E., **1914**, 2313; Chem. Abs. **8**, 3626 (1914).

[3]Edeleanu's Apparatus For Determining Carboids in Petroleum Distillates, etc., R. Muencke; Z. angew. Chem., **27**, I. p. 272; Chem. Abs. **8**, p. 2617, (1914).

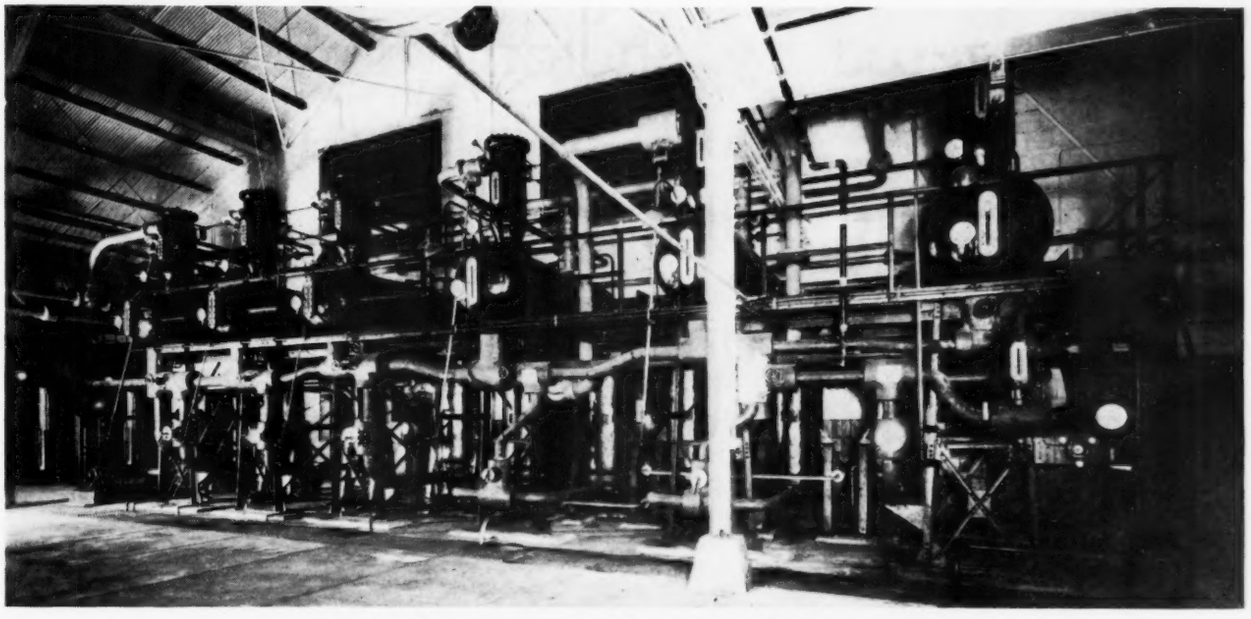

Fig. 6—Six evaporators, for removing SO_2 from extract

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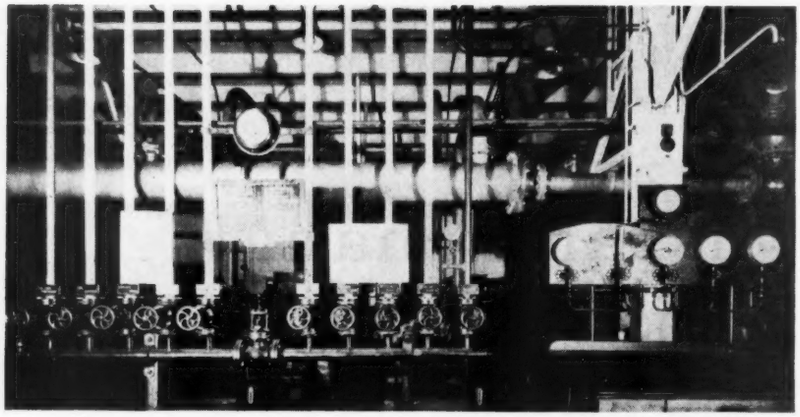

Fig. 7—Remote control system, Edeleanu continuous plant

use of the process. This investigation showed that the specific gravity of the refined oil was always lowered by SO_2 treatment, and that of the extracted material was always higher than for the refined oil or for the raw distillate.

Tabulations given with the article showed that this specific gravity change is not always uniform, varying in degree with the source of the treated material and somewhat with the gravity of the original material.

Later Moore, Morrell and Egloff[4, 5] showed the relative solubility of various homologous series of hydrocarbons in SO_2 at different temperatures, giving a large number of tabulated results to support their findings. According to these investigators, olefines and aromatics are completely soluble in SO_2 at minus 10 to minus 18° F. The solubility of paraffins at minus 18° F. is immeasurably small, while at minus 10° F. it is 1.8 per cent. The solubility of naphthenes varies from 0 to 100 per cent, depending on the concentration and temperature of SO_2 employed, showing that these two factors exert a controlling influence on the process, and the losses involved under carrying conditions.

By employing synthetic mixtures of various hydrocarbons in different concentrations, it was found also that efficient extraction of aromatics is possible only when the aromatic content of the oil is below 25 per cent. Up to 20 per cent of olefines may be extracted with comparative ease and efficiency. Aromatics and naphthenes may be separated satisfactorily provided the per cent of solvent is kept low.

The existence of a compound of undetermined nature, between the solvent and the naphthenes used, was indicated in the experiments reported by these collaborators, a crystalline substance separating out of the mixture when treating naphthenes which was redissolved by the addition of further quantities of solvent.

Later, when the process had been further investigated, after the war had permitted resumption of effort along normal lines, the inventor discussed the history of the entire process and its development[6]. In this article he showed the result of application of the process to lignite tars and to the purification of crude montan wax.

From lignite tar a refinable wax was obtained as one product, with a low cold-test lubricating fraction as the other, demonstrating that lubricants of good properties may be obtained from this source. Treating montan wax with sulfur dioxide allows the separation of the resins and waxes in the crude material to be carried out simply and practically quantitatively rendering the wax more suitable for certain purposes than when treated in any other way.

The application of SO_2 to the refining of lubricating distillate was made successfully several years later than its use for light oils. This variation of the process had been studied for several years previous to 1923 as it was at that time that the inventor reported the results discussed in the last paragraph.

In 1923 Waterman and Perquin[7] reported that, in treating light oils with 70 per cent of SO_2 the refining loss was about 20 per cent, and the loss of solvent under their method of operation amounted to but 0.3 per cent. These investigators found that the sulfur content of the treated oils was 75 to 80 per cent less than that of the untreated oil. They also reported that better yields were obtained in manufacturing white oils by this method than by older processes used up to that time.

In refining Venezuela crude products, chiefly kerosine, they found[8] that the solvent loss was less than one per cent, sulfur content was lowered 80 per cent, and the aniline point of the finished product was 65.2 degrees lower than the original.

In applying the SO_2 method to refining heavy distillates and residual oils such as cylinder stocks, and also to motor lubricants, turbine and transformer oils, the results obtained are what might be expected from experience with light oils. Aromatics, olefines and to some extent naphthenes are removed from the oil,[9] and sulfur content is lowered materially, although apparently, as will be seen later, not to the same degree as has been reported earlier for light distillates.

Aromatic compounds obtained in the extract may be used as anti-detonants. Extracted oil may be cracked, as with aluminum chloride, to pro-

[4]Use of SO_2 in Treating Oils, Morrell, Moore, and Egloff; Met. Chem. Eng.; **18**, p. 396 (1918). [5]Reprinted, Anon., Ref. Nat. Gas Mfr., **1**, No. 2, p. 22, (1922); Chem. Abs., **17**, p. 338 (1923).

[6]Address by L. Edeleanu, Z. angew. Chem., **36**, p. 573; Oestrr. Chem Ztg., **26**, p. 164, (1923); Petroleum Z., **19**, p. 1195 (1923); Chem. Abs., **18**, p. 750, (1924).

[7]Significance of Edeleanu's Process in Petroleum Refining, Waterman and Perquin; Chem. Weekblad, **22**, p. 389 (1923); Chem. Abs. **19**, p. 337 (1925). Edeleanu Process as Substitute for Chemical Process in Oil Refining, A. Lazar; Pet. World (Calif.) **11**, No. 4, p. 42 (1926); Chem. Abs. **20**, p. 3230 (1926).

[8]Importance of Edeleanu Process, Waterman and Perquin; J. Inst. Pet. Tech., **11**, pp. 560-70 (1925); Chem. Abs. **20**, 1712 (1926).

[9]New Method Of Refining Petroleum by Liquid SO_2, L. Edeleanu; Mon. petrole roumain, **25**, p. 2071 (1925); **26**, p. 49 (1926); Chem. Abs. **21**, p. 2182 (1927).

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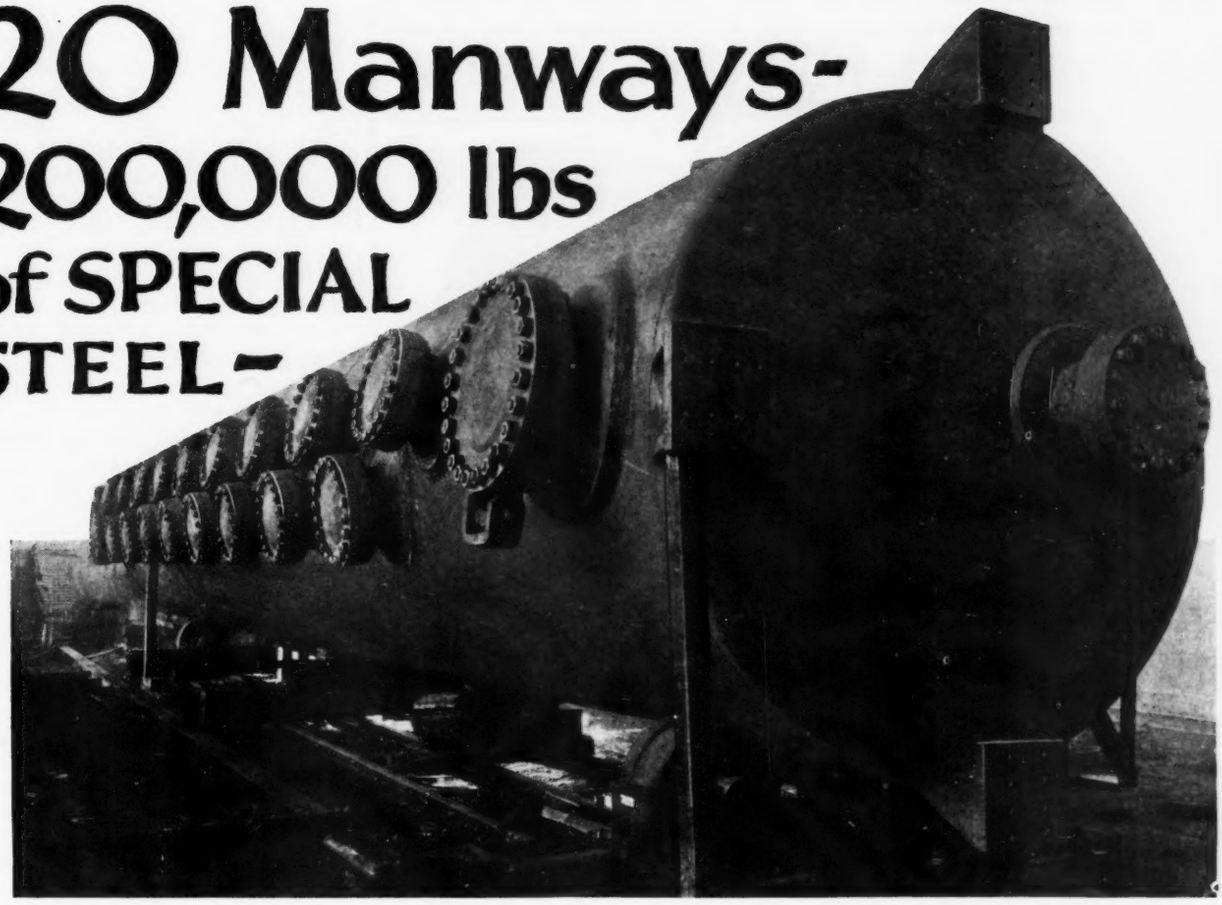

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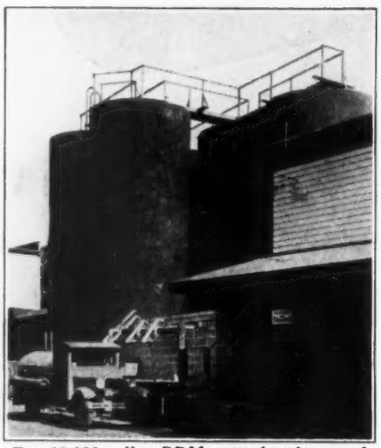

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duce fuels of high anti-knock rating, in which process the chloride may be held in the liquid state and without poisoning the catalyst. This last especially would appear to hold possibilities in connection with the development of anti-detonating motor fuels, although whether such a method of cracking, either catalytically with Al_2Cl_6 or by heat or pressure or both, would prove a commercial success has not been announced so far as the writer is aware.

The I. G. Farbenindustrie A. R. recently obtained a patent[10] (1928), whereby extract from the Edeleanu process is heated, in the presence of aluminum chloride, ferric chloride or zinc chloride, with olefines of varying molecular weights for the production of lubricants and hydrocarbons of the lubricating oil range.

Apparently this is a polymerization of the aromatic, naphthene and other hydrocarbons in the extract with the olefinic unsaturates present, with possibly some saturation of these resulting hydrocarbons by the well known action of the chlorides, to produce heavy oils more paraffinic in character.

More recently several articles have been published in technical journals outlining the So_2 process as applied to heavy oils, so that major steps in the process are fully explained in a general way. Cattaneo[11] finds that the continuous process, which superseded the older batch process, is better, especially in uniformity of product and in consumption of steam and power.

Another well-informed research chemist stresses the fact that the yield of finished oil by the solvent method is superior to that obtained by any other process producing lubricants of comparable quality[12]. In the accompanying bibliography will be found a list of American and European patents dealing with several important phases of the process and im-

[10]Use For Edeleanu Extract From Pet.; Br. Pat. 316,274 (1928).

[11]Article by G. Cattaneo, Peth. Z., 24, p. 1634 (1928); Chem. Abs. 23, 1742 (1929).

[12]Treating Petroleum With Sulfur Dioxide, B. Neumann; Chem. Fabrik 1928, p. 641; Chem. Abs. 23, p. 1254 (1929).

provements that have been made in its operation over a period of several years.[16]

Most of the information that has been published on this process, especially in the journals of this country, has dealt with the method in a somewhat general manner, which, although including most, often times all, of the essential details, have not credited data on actual operating conditions to any specific plant refining a definite charging stock, the properties of which are given in detail. Results of operation, on the qualities and properties of a representative stock have been given in too few instances.

The discussion of the Tide Water plant at Bayonne in succeeding parts of this article will be given in such a manner that those interested in the finer points of the process as it works out in practice may be able to obtain a complete picture of the entire method and what may be done with it in treating a single charging stock of known characteristics. Comparison of such stocks, before and after treating, and with oils refined by other means, are included to complete the data on the entire system.

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[16]Patents On SO_2 Process.

a. Br. Pat. 301,995 (1927); Chem. Abs. **23**, p. 4337 (1929).
b. D. R. Pat. 476,464, (1925); Chem. Abs. **23**, p. 3761 (1929).
c. Br. Pat. 267,071, (1926); Chem. Abs. **22**, p. 865 (1928).
d. Br. Pat. 267,726 (1926); Chem. Abs. **22**, p. 1470 (1928).
e. U. S. Pat. 1,666,560, (1928); Chem. Abs. **22**, 1054 (1928).
f. Br. Pat. 279,774 (1926); Chem. Abs. **22**, 3042 (1928).
g. Br. Pat. 281,337 (1926); Chem. Abs. **22**, 3523 (1928).
h. U. S. Pat. 1,585,493 (1926); Chem. Abs. **20**, p. 2243 (1926). Preparation of anti-detonant from SO_2 extract from light oils.
i. U. S. Pat. 1,586,357 (1926); Chem. Abs. **20**, p. 2582 (1926).
j. U. S. Pat. 1,526,665 (1925); Chem. Abs. **19**, p. 1345 (1925).

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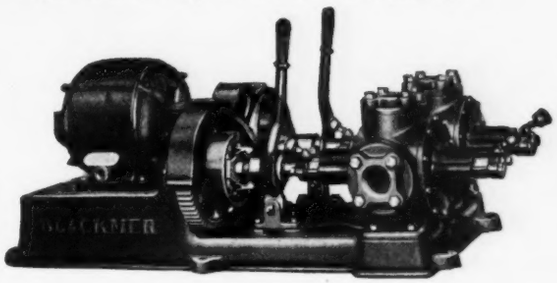

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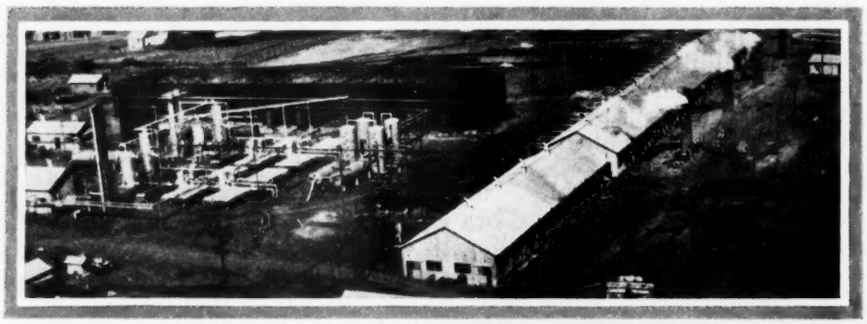

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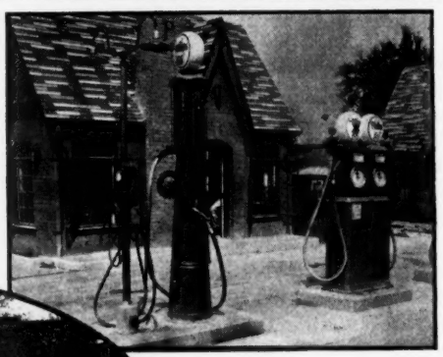

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By Arch L. Foster

N. P. N. STAFF WRITER

CLEVELAND, Feb. 10

THE automotive diesel engine has come to stay, and its designers, and those responsible for its development in new fields, have solved a large number of the many problems which were faced at the outset. Many more problems, mechanical and otherwise, remain to be solved before this "new" cycle and the engine which employs it can be as universally applicable to every day uses as is the gasoline motor.

These decisions have been made by automotive engineers conversant with the question of the diesel and its application to power problems, especially in automotive equipment, and the manner in which some of the problems have been handled was discussed at length by the Cleveland section of the S. A. E. Feb. 9.

H. D. Hill, vice-president of the Hill Diesel Engine Co. of Lansing, Mich., showed how his company has developed truck and other heavy automotive and marine engines which promise a power plant of very economical operating costs for such purposes as they were designed. The speaker discussed and illustrated three types of diesel combustion systems, the direct-to-cylinder, the precombustion chamber, and as a variation of the latter, the antechamber, systems of ignition, and showed some of the advantages and disadvantages of each system. The antechamber system is that adopted by the Hill Co.

In the direct-to-chamber system, using a plurality of spray orifices for distributing the charge of oil throughout the cylinder, great difficulty was experienced in properly mixing the charge with the highly compressed combustion air already in the cylinder, producing irregular burning, carbon formation, and other troubles.

The speaker showed slides of two more recent types of precombustion chambers used on diesel cylinders, the Duetz and the Benz. The former is located in the side of the cylinder, and is connected with the main cylinder by means of several small holes through the intervening wall.

The Benz system is placed in the center, or near center, of the cylinder head, and connects with the cylinder through several orifices, arranged to spread the incoming fuel charge in a wide angle cone to all parts of the cylinder combustion space. The difficulties encountered with both these types, according to the speaker, are that the necessity for passage of the burning mixture through the connecting orifices "damps" the combustion, which must be re-started again from heat within the cylinder. At the end of the exhaust stroke some partly unburned gas remains in the chamber, which may pre-ignite the next incoming charge.

To avoid more of these difficulties the Hill engine is equipped with an antechamber system, which really forms a part of the compression space of the cylinder. No orifices are used, the chamber is water jacketed and is placed at an angle near the side of the cylinder head. No damping effect is present since no restricted orifices must be passed by the burning charge on its way to the cylinder. A single large hole in the bottom of the antechamber permits most of the burning charge to be forced by the first pressure of combustion into the cylinder space.

On these types of engines, a spray is not necessary, and a single injection orifice is used, with pressures at about 1500 pounds per square inch.

During discussion of the paper, it was pointed out that the diesel engine, if it is to survive, must not depend on a differential in price between gasoline and diesel fuel, as it is considered that, in the case of the use of diesels becoming as widespread as that of gasoline engines now, this price difference will practically disappear.

Observation was made of the fact that diesel manufacturers are going more and more over to a cycle nearer that of the Otto, or gasoline engine cycle, which burns the charge at essentially constant volume.

This statement was corroborated by Mr. Hill, and other diesel builders, one of whom stated that in his opinion the final outcome of the development of the two cycles will result in a combination cycle which will include the flexibility of the Otto with the fuel economy of the diesel cycle.

F. Jehle, of the White Motor Co. of Cleveland, pointed out some of the difficulties that remain to be solved by the diesel builder. One of these is the higher weight-horsepower ratio of the diesel as compared to the gasoline motor, which must be reduced. This ratio, and the relative fuel cost per useful horsepower-hour of work obtainable in the diesel, must equal that of the gasoline motor before the diesel becomes a successful competitor of the latter for general use.

In addition, the speaker stat-

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ed that the diesel must give "performance"—easy and certain starting, quick acceleration cold or hot, low idling speeds, and a very wide range of speeds between the lowest and the highest attainable speeds. "When these results have been accomplished," said Mr. Jehle, "I shall become a strong diesel enthusiast."

Arthur Nutt, chief engineer of the Curtis Airplane Co., in presenting the advantages claimed for the diesel system for aircraft use, stated the chief of these to be the freedom from electric devices, and the reduction of the fire hazard. Doubt was expressed that the fire hazard is reduced to the extent sometimes believed, as it has not yet been definitely determined that furnace oil, such as is used for diesel fuel, will not flash or catch fire in the event of a crash with a hot motor.

With special ethylized California aviation gasoline, a fuel economy of 0.40 pounds per horsepower-hour has recently been attained in aviation engines, he stated. Other speakers replied to this by saying that 0.30 pounds and better are regularly achieved by the use of diesel engines for similar and other purposes.

Continued reference was made to the fact that no advantage could be claimed by diesel proponents on the price differential which exists at present. Early in the discussion Mr. Hill had stated that the fuel consumption of a diesel motored truck, which he had driven from Lansing Michigan to Cleveland just before the meeting, was eleven gallons of furnace oil, purchased at five cents per gallon, a total fuel cost of 55 cents for the trip of approximately 235 miles.

In replying to later discussion, another speaker stated that, in case diesel fuel became as expensive as gasoline, then gasoline can practicably be used much more economically in the (modified) diesel than at present in the gasoline motor, permitting a saving as high as 25 per cent or thereabouts. On a specific installation it was stated that $2600 per year could be saved by using gasoline in a diesel, or enough to

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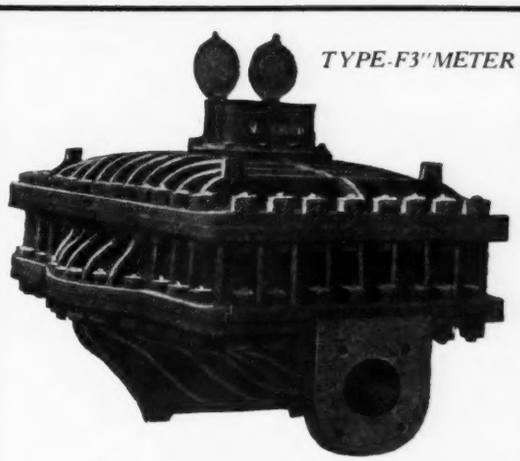

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COLD SETTLED AND CENTRIFUGED
PALE—RED OILS
WAX—PETROLATUM
TECHNICAL WHITE OILS
WHITE MINERAL OILS

For 35 years of reliability, service and integrity—this Company enjoys an International Reputation

JAMES B. BERRY SONS' CO., INC.
General Office—Oil City, Pa.

District Offices at
New York, Philadelphia, Boston, Chicago
London—Hamburg

Cable Address—JASBER Oil City *All Codes*

pay for the installation in one year.

Gasoline engineers stated that one of the greatest advantages of the diesel type is the relatively high efficiency of this cycle at lower than full loads. The diesel is practically as economical at one-fourth load as it is at full load, which is far from true of the gasoline, or Otto, cycle engine. The belief was expressed that it is this fact which will make the diesel more attractive to the user, since a great portion of the time an engine is used it is either idling or operating at low load.

Diesel manufacturers present were frank in admitting that many problems remain to be more satisfactorily solved before the application of this power plant can become as universal as the gasoline engine. It was stated that every major problem is well on the way to solution or is being tackled intensively, and that an entirely practicable engine is only a matter of time.

USL Battery Corp., Niagara Falls, N. Y., has developed a new USL full range welder, having an open circuit or striking voltage of 60 volts (from 70 to 350 amperes), which is substantially constant for all commercial sizes of electrodes.

There are no voltage adjustments nor switches for current adjustments. Other features are: mechanical brush shifting device, permitting accurate current adjustments; a welding gradient of practically constant current at the arc for small electrodes, gradually changing to constant energy at the arc as size of electrode increases; a new principle which results in easier operation and eliminates possibility of freezing the electrode; and a graduate dial telling the operator the size of electrode to use which eliminates adjustments of knife switches and field rheostats.

* * *

Goulds Pumps, Inc., Seneca Falls, N. Y., has placed H. W. Foulds in charge of all sales for the company. Mr. Foulds, who was formerly vice president of Servel, Inc., has been assistant to the president of Goulds Pumps.

A McDonald Firestone one-stop station in a residential district of Charlotte, N. C.

Automotive Servicing Goes One-Stop

CHARLOTTE, N. C.

IF YOU need automotive service when in Charlotte, try a one-stop service station. It may save you considerable time, since this city of 80,000 population has only three of the older type automotive supply stores.

These three stores are: a factory branch of a nationally advertised storage battery, a combination tire and battery shop, and an electrical shop that sells batteries. Such is the change that has come to this southern city since the first one-stop station here was opened in 1920.

Aside from mechanical servicing of the auto all automotive servicing has gone one-stop.

The direct descendants of the first one-stop station here are the present McDonald Firestone stations. Eleven years ago J. Caldwell McDonald entered the field with a one-stop station. He was primarily a tire merchandiser. His business has developed into the present Firestone chain of 12 stations in Charlotte.

Next in line comes the Keely Grice one-stop stations. This business is eight years old. Mr. Grice is primarily an oil man, and now operates six stations.

Add to these 18 one-stop stations a list of ten tire dealer one-stop stations, plus tires being sold by stations of the New Jersey Standard Oil Co., and the small gasoline dealers who handle a diversified line of goods, and there isn't much room left for the lone tire, battery or accessory store. Consequently Charlotte is "one-stop service minded" when it thinks of its automobiles.

By E. L. Barringer
N. P. N. STAFF WRITER

The Keely Grice stations are organized on the mother station plan. There is the one main station, selling the complete line of services, as well as speedometer and radiator repairing, while the five other stations carry a limited stock.

All stations carry stocks of tires, batteries and small accessories. Cold patching of tubes is done by all stations, while the heavier tire repairing and battery work is sent to the mother station.

Mr. Grice also is interested in other phases of the automotive servicing business. In addition to the six stations in Charlotte, he is a commission agent for Shell and a distributor in 20 counties of North Carolina for a nationally advertised speedometer and an oil filter.

Mr. McDonald's stations are in five cities in the Piedmont district of North Carolina. There are 16 stations in his chain. Besides the 12 in Charlotte he has stations in Greensboro, High Point, and Gastonia. In his first year in business Mr. McDonald sold about $50,000 worth of merchandise. Over the past 11 years he has increased his business to an estimated volume of $1,200,000 annually now.

Personal salesmanship by the station managers is the best means of building business now, Mr. McDonald believes. Road service used to be a good feature at his stations, but with the increase in gasoline and tire one-stop stations, the need for this service has diminished to where it has little attraction in creating business.

In developing personal salesmanship, Mr. McDonald has zoned the cities where he has more than one station. A definite marketing territory is given each station, and the manager is to work up the maximum trade possible for all services offered by his station.

Each week the manager receives a quota of calls to be made in that period. Old customers are called on to develop more trade. Potential customers are visited and their business solicited.

A report is made by the manager on each call, and the main office sends out a follow up letter.

Twice each month sales meetings are held for all station

The INDEPENDENCE of the Jobber today can be definitely established only by his source of supply. El Dorado's unfailing production of superior products; timely deliveries and guarantee of Jobber marketing protection assures many of an INDEPENDENCE which bears Security and Prosperity. You too can secure your INDEPENDENCE by ordering from El Dorado.

The EL DORADO REFINING Co.
•• Established 1916 ••
EL DORADO, KANSAS

managers and assistant managers. All white employes are classed as assistant managers, excepting the men in charge of the station. A supervisor inspects each station daily.

None of the one-stop stations have gone into the mechanical automotive servicing such as wheel and brake work. These jobs are sent to the service garages.

At the McDonald stations, for instance, wheels are tested for alignment before a new tire is mounted. If the wheels are off the car is sent to the dealer's garage for repairs.

TRAVEL NOTES . . . . . E. L. B.

TOURIST traffic is reaching its peak now in the southeastern states. All signs indicate that this year's volume will equal that of previous winters. This may forecast much traveling over northern highways next summer.

The "type" of tourist is improving. A station operator in Georgia has noticed a decided change. Five years ago virtually every car with an out-of-state license passing his station carried a camping outfit. Today the camper-tourist is rare. The 1931 model tourist sleeps in private homes or hotels and eats in retaurants. .....

Trucks are playing a more important part in transporting merchandise. Thousands of gallons of gasoline are used each week to move cotton in South Carolina, for instance. Trucks carry the baled cotton from the gin to the warehouse, from the warehouse to the mill. Vegetables and fruits also find their way to northern markets in trucks. .....

Virtually every service station in this territory is approaching one-stop service. Cold drinks, candy, tires and accessories are the most common merchandise sold with gasoline and oil. Most jobbers operating service stations are jobbing automotive goods to their outlets. Where the jobber rents his stations the operators are permitted to carry other lines.

The straight station, selling only gasoline, oil, and possibly lubrication is rare, and these are company operated stations; but many stations owned by major companies are being rented and the operators diversify their line of goods.....

There is a definite trend towards modern equipment at service stations. Enclosed lifts, for car washing and greasing are beginning to replace outdoor pits. Weather conditions in the south have not made the need for enclosed lifts as noticeable as in the north, but oil companies are beginning to take advantage of the advertising value of modern equipment.

One of the biggest oil companies in Georgia is shaping its station program around the modern type building, with latest equipment. Curb pumps, and undesirable dealer outlets are being closed out. In their place modern stations are being built. Instead of four or five curb pump outfits in a small town, this company desires one attractive well equipped station. Equipment manufacturers have a big field here. .....

If any oil man, or politician, wants an insight to the results of a big gasoline tax, with some of the fund diverted from the highways, let him drive in Georgia. Now Georgia is an admirable state in many ways, but her roads are wretched. The principle roads, of course, are in good shape most of the way. But the state roads are mainly graded dirt highways.

It is virtually impossible to travel very far without consulting a service station for directions. The only road markings consist of highway numbers at infrequent intervals. Directions for turning right or left, or curve ahead, are seldom given.

Take the drive out of Atlanta to Stone mountain, where the Confederate memorial is being carved on a large rock, for instance. This is only about ten miles out of the city, on a state route. In this distance it was necessary to ask directions four times. There was a choice of two roads ahead, both paved, in each instance, and no indication as to which way to turn.

Georgia extracts 6 cents tax from the customer for every gallon of gasoline sold. It may be argued that the state has a comparatively small number of autos registered and a small gallonage compared to other states. Such an argument may hold for local consumption but the tourist can look at it differently.

Other states have a high tax on gasoline, but the tourist gets good roads and adequate markings for his money in the Carolinas and Florida. In case the tourist feels that he is not getting full value for his gasoline tax in Georgia he can console himself by looking at some modern schoolhouses that he has helped build at the rate of 1 cent on every gallon of gasoline. Then he can look at the state capitol in Atlanta and remember that the legislature is taking another cent a gallon for purposes other than highways. .....

Which leads to another point, that of impressing on the service station customer how much the gasoline tax figures in his purchase. Through the southeast, as in many other parts of the country, there is a variety of methods of posting the price at the station. Many roadside stations have no price cards. Most drivein stations in the city post only the full price, tax included.

A uniform method of pricing gasoline, showing the price received by the oil company, the tax, and the total price, would be helpful in driving home the tax lesson to the customer. . . .

Price conditions in a muddle. If it isn't open price cutting at stations on the outskirts of most cities, it is the commercial discount. Motor oil also is subject to price competition.

NEW Wilcox Motor Oil Is Refined to Meet Modern Demands

Using a selected, pure paraffin base crude and the latest and most scientific refining methods, WILCOX has created a line of motor oils that not only meets all demands of present day lubrication, but anticipates the demands of the future.

1.—A selected pure paraffin base crude gives WILCOX Motor Oil outstanding endurance—the ability to retain its body even under abnormally high engine temperatures.

2.—Refining by a straight overhead system removes all light ends and foreign material and makes this oil 100% lubricant, with low volatility and high flash, fire and viscosities.

3.—Thorough de-waxing secures an oil that flows at zero, forms no crankcase sludge and minimizes residue.

4.—Every shipment of New WILCOX Motor Oil is given our famous **double check** to insure accurate adherence to our perfected specifications.

Wire, phone or write for quotations on New WILCOX Motor Oils, WILCOX Greases, WILCOX Gasoline and WILCOX Ethyl Gasoline.

WILCOX OIL & GAS COMPANY

Producers — Refiners — Marketers

General Offices: Tulsa, Okla.

WILCOX MOTOR OIL

double Checked

Most stations, especially in the cities, post the regular price. Those near the corporation limits come out openly with signs along the highway advertising gasoline from 2 to 3 cents below the posted price. Then there are some bulk service stations selling openly at the same level.

The most common cause given by marketers is the long margin allowed the dealer. Under the lease and rental policy of placing a station on a 100 per cent basis with some one company, the operator gets a 4-cent margin, 1 cent for rent and 3 for margin. This permits the dealer some leeway to play with his price, and the result usually is the giving away of half his profit, and this on nationally advertised products.

The customary commercial discount at stations is 2 cents a gallon. The dealer finds himself up against this discount on trucks, and the individual car owner too is using his bargaining ability to buy at a lower price.

An oil man in a southern city of about 60,000 estimates that fully half the gasoline sold there gets a 2-cent discount. What about the tourist, he was asked.

"They are just fish," he replied. "They pay the full price, but the local people know about these discounts and browbeat the dealer into giving it or else they go to a competing station.

The lease and rental marketing contract is also given as the cause for motor oil selling from 50 cents a gallon up. Atlanta especially is feeling low oil prices. A leading department store recently had a big window display of motor oil, in five-gallon cans, at 50 cents a gallon.

Service stations under lease and rental are being taken out of circulation as motor oil outlets for a variety of brands. In some cases the 100 per cent dealer oversteps the bounds and takes on other oil lines in spite of his contract. The oil jobber, however, recognizes that this type of dealer usually is undesirable.

As a result of this marketing practice motor oil is finding an outlet through auto supply stores, and direct to the consumer.

OWOSSO

TRUCK AND TRAILER TANKS

Styles—Types—Sizes—
for every purpose

Owosso Truck and Trailer Tanks—large or small—all have the same sturdy construction features that consistently pull repeat orders. A 250-gallon tank is made with the same care as that given the above Trailer Tank made for Genesee Oil Co., Flint, Mich.

Owosso Truck Tanks have special construction features—may we furnish detailed information?

OWOSSO BOILER & WELDING WORKS
Owosso, Michigan

This OPW
HOSE NOZZLE

Gives You Better Control

No. 27 CX
Wet Hose Nozzle for Meter Pumps showing Dash-Pot

You are not experimenting when you purchase an "OPW" hose nozzle with the dash-pot feature. This nozzle gives you full control at minimum or maximum speed. The dash-pot incorporated in our catalog Nos. 27 and 74 will relieve kick-back in meter pump and the hose line when the valve is closing. Mail in the coupon for more information about this nozzle.

THE OHIO PATTERN WORKS & FOUNDRY CO.
2730 Spring Grove Ave., Cincinnati, Ohio

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Cincinnati, Ohio
Send us a copy of your catalog.
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Address.....
City..... State.....

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MODEL 17
TYPE-A
MICRO METER
REG.
PAT. APP. FOR
IN LET
"Listed as Standard by Underwriters' Laboratories"
One-Half Actual Dimensions
MICRO METER

ADVERTISING PAGES REMOVED

$15,000 Saved in Trucking Motor Oil

This truck hauls motor oils from St. Louis to 19 bulk plants in Missouri and Illinois for the Milton Oil Co. The saving by this transportation method is said to be $15,000 a year

SEDALIA, MO.

A SAVINGS estimated at $15,000 annually is being made by the Milton Oil Co. through handling its motor oils between a compounder's plant and its bulk stations by truck. The company used to ship oil from St. Louis to the plants by rail in drums. The plan has been in operation successfully since June.

The Milton Oil Co., with main offices in Sedalia, has 19 bulk plants from western Missouri into St. Louis and central and southern Illinois. Under the former method of distribution many shipments were on the l.c.l. rate, and the oil was handled again at the bulk plant before being distributed to dealers and service stations.

A survey indicated about 95 per cent of the company's oil sales from bulk plants were in bulk lots, and that sales in drums constituted a small portion of the business. With these figures, Harry E. Milton, head of the company, scrutinized his operating costs on motor oil from the time he received the oil at the compounder's plant in St. Louis until it was ready for retail distribution. Then he changed to trucking. Now the oil is moved from a compounder's plant by tank car, on a switching charge, to his St. Louis plant, and from this plant it is taken to the 19 bulk plants by truck.

At each bulk plant about $250 was invested for an oil storage tank. Most of the plants were equipped with 3000-gallon tanks; a few larger plants with 4500-gallon tanks. These tanks are located near the warehouse, and the fill lines are indoors. The tanks have seven compartments.

The truck has a capacity of 2000 gallons, in six compartments. This method of distribution is used for the company's own oil brand, and for two outside brands it carries, and this outside brand is still being handled by drums by freight.

In considering the change Mr. Milton estimated a sizeable savings on hauling costs through use of a truck, l. c. l. freight charges being eliminated, as well as the back haul of empty drums. Cost of cleaning, painting, filling, and replacing drums he estimates at 3 cents a gallon, this charge now being eliminated.

Although an oil storage tank is necessary now for each bulk plant these tanks have produced a savings of 75 per cent in warehouse space that was formerly necessary for drum storage.

Another saving is in taking of inventory. Mr. Milton estimates that about 50 per cent of the auditor's time in taking oil inventory will be saved through the elimination of counting drums at the various warehouses.

The Master Electric Co., Dayton, manufacturer of Master motors, has placed on the market a combination of explosion resisting motor and switch for use in hazardous vapors, particularly for use in gasoline pumps.

The switch is built into the motor frame as an integral part of the motor. The combined switch and motor are approved by the Underwriters' Laboratories, assuring protection from explosion and eliminating the hazard of extra wiring, piping, splicing, etc., required by the usual installation of a separate switch.

* * *

Name of Domestic Electric Co., formerly of Kent, O., has been changed to Black & Decker Electric Co., and the headquarters are now at Towson, Md., where the Black & Decker Mfg. Co. has its headquarters. The company manufactures electrical tools.

Line Strainer
Iron Body—Brass Cylinder Strainer
Plate 914

No restriction of flow.

Strainer easily removed by simply removing bolts and lifting off cap.

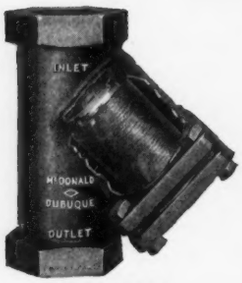


Plate 914
Line Strainer

Improved Pressure Relief Valve
Plate 910

All brass. Insures protection to pump manifolds. For gasoline or oil use. Has extra large relieving capacity.

Plate 814
Double Swing Joint

It pays to buy McDonald Equipment. It comes to you mechanically perfect.

EST. 1856
McDonald

Plate 910
Improved Pressure Relief Valve

Double Swing Joint
Plate 814 (Patented)

Extremely sturdy in construction.

McDonald Swing Joints are made single or double types—iron body with brass ferrule or all brass.

Plate 858
(Patented)
2-4-30

Expansion Relief Gate Valve

Expansion Relief Gate Valve
Plate 858
Patented 2-4-30

Prevents pressure building up in lines. Lock type also furnished screw or flange.

There's double satisfaction and protection when you buy McDonald Equipment. Every product comes to you unconditionally guaranteed—backed by 75 years of manufacturing skill—and proved by years of enthusiastic use. Remove all doubt—buy McDonald Equipment. It is completely illustrated in our catalog. Send for your copy.

"The Home of the Swing Joint"

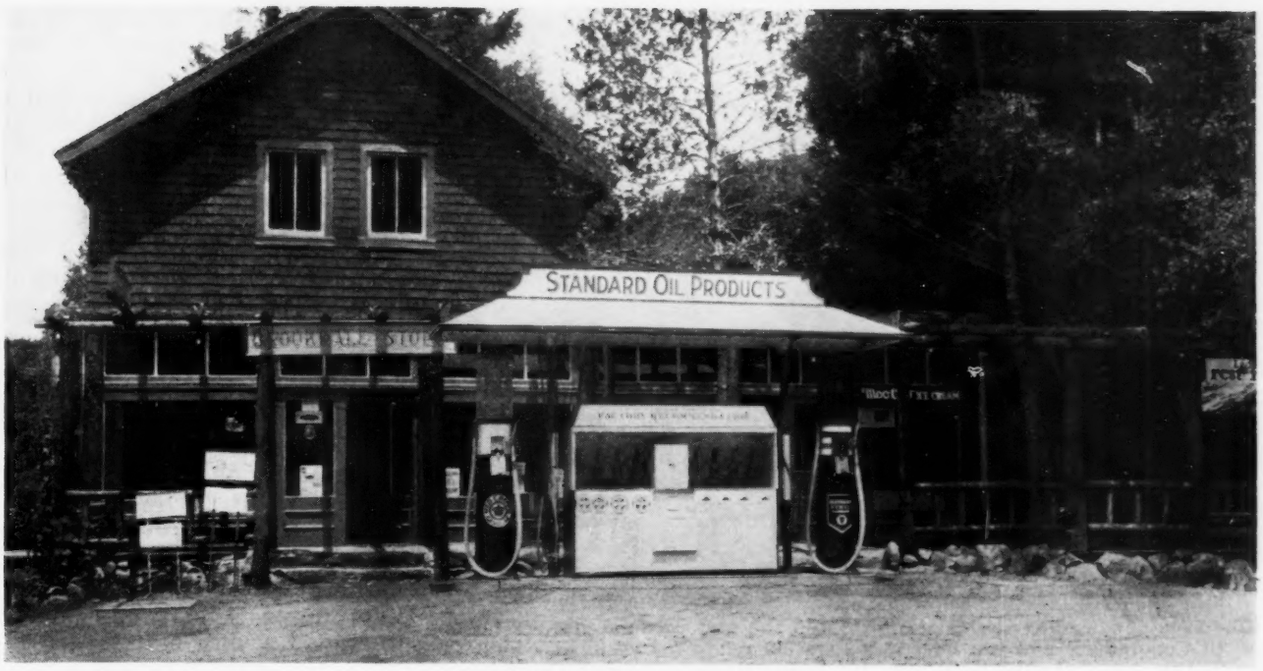
A. Y. McDONALD MFG. CO.

DUBUQUE, IOWA

Omaha Minneapolis Des Moines Kansas City
Sioux City Lincoln Denver

There's A McDonald Distributor Near You

McDONALD



A typical portable station of the Standard Oil Co. of California, installed at a rural general store in California

Our Industry Goes Modern Too, With Miniature Gas Station

LOS ANGELES

THE miniature craze has swept the country with undersized golf courses, tennis games, typewriters, and automobiles. Our industry, too, has gone modern with the miniature, portable service station.

The oil industry's version of the miniature station is a complete gasoline and oil servicing unit, with standard sized equipment, mounted on a base about two feet wide and 12 to 18 feet long. After small storage tanks are buried the portable unit is installed, the drives graded, and a gasoline outlet is ready for business.

The portable unit is designed primarily for highway lunch stands, garages, and vacant city lots that are potential gasoline outlets yet do not warrant an investment for a service station building and its attendant equipment.

The portable station can be installed quickly on a vacant lot, and its salvage efficiency is practically 100 per cent.

This unit has found favor with oil companies on the Pacific coast and in west Texas. An oil equipment manufacturer in the middle west has designed two portable models; one with the complete equipment only, the other with equipment and a small room for the attendant.

The cost of these portable units installed is about $1000. On the Pacific coast it is the practice to lease a lot and install the unit. Then the complete portable station is rented to an operator, usually the lot owner. The annual rental usually is 10 per cent of the installed cost, plus land rent, prorated in monthly payments. A unit costing $840 installed, for instance, on a lot leased at $4 a month, would rent for $11 a month.

Some companies have a flat rental rate for the unit of $9 a month plus land rent. In case the lot owner is the renter the charge is $9 a month less land rental.

Standard Oil Co. of California began using a portable station about a year ago. Other companies on the West coast using this type station are The Texas Co., General Petroleum Corp., Union Oil Co. of Calif., Shell Oil Co. of Calif., Associated Oil Co., and the Rio Grande Oil Co.

With the exception of slight variations, most of the portable stations now follow the early Standard of California design, named the "Junior Unit" station.

Equipment is mounted on a metal base, two by 12 feet. On each end of the base is a gasoline pump. Between is a battery of motor oil storage tanks with hand pumps. Covering the equipment is a canopy.

Since installations are made usually where gasoline volume is light, storage tank capacities are one tank of 280 gallons for premium grade gasoline, and one 550 gallon tank for regular motor fuel. Larger tanks are installed where business warrants more storage capacity.

The gasoline storage tanks

Photo from Butler Mfg. Co.

One type of portable service station. Add the underground storage tanks to this equipment and you have a gas station ready for business, complete with gasoline and oil pumps, air and water lines. At neighborhood between the four canopy supports hood lowers to enclose the oil pumps

are buried under the unit, four feet below ground level. In the first units storage was included in the metal base. This design was not satisfactory on account of fire ordinances in metropolitan areas requiring underground tanks, and on account of danger through autos or trucks breaking the base. This design caused several fires in outlying districts when trucks crashed into the base.

Standard Oil included a compressor of 2½ cubic feet capacity, driven by a half horsepower motor. Where volume is small some units of other companies have only the hand operated visible pumps and oil tanks. Other designs have air-operated pumps, oil tanks, water connection, and an air line for inflating tires. Without electricity or water connections portable units vary in cost from $750 to $900. Complete units with air compressors cost as much as $1250.

The greatest departure from the original design was made by the Rio Grande Oil Co. Its model is called the "Hustler." It is used as a supplmentary unit at regular service stations, or as a portable unit where volume is small.

In place of the canopy over the pumps, Rio Grande's design includes a sign standard. The sign has the company's name in red Neon letters against a blue blackground. The sign is 10 feet long, two feet wide, eight inches thick, and stands 12 feet off the ground. Under the sign are floodlights directed on the equipment below, and part of the adjoining drive.

Rio Grande's unit provides for two or more gasoline pumps

Rio Grande Oil Co. uses this variation of the portable station. The company's sign replaces the canopy. In addition to being a portable station in itself, the unit is used also to provide additional gasoline pumps for established service stations

IT'S NONE OF YOUR BUSINESS!

It *could* be. It *should* be.
Somebody down the street is getting it:
selling the same brands you sell,
at the same prices you charge,
to the same trade that drives *past* your station.
Down the street they know that selling's telling.
There's no mystery about what *they* sell.

Patent applied for, on this new, all-glass, separable-face globe

Use

CINCINNATI GLOBES

to bring business your way!

Their colors have to be permanent; *they're fired right in the glass*

Their glass is scientifically toughened; *weather does not easily affect it*

Their cost is lower, through this *elimination of most breakage loss*

They pull more sales, because they *stay* attractively bright.

This coupon is for folks who could use *more* business

THE CINCINNATI ADVERTISING PRODUCTS CO.
York & Colerain Aves., Cincinnati, Ohio 231

Send me, without obligation, *full information* about *Cincinnati Globes*, both Metal-Frame and All-Glass types.

Name.....

Address.....

City..... State.....

"Continental Equipped"

The "reason why" more pumps today are "Continental Equipped" than ever before,--

Full Flow (not undersized)
Heavier Fabric Cover.
Complete construction built to *"underwriters' standards"*.
Cast Brass non-leak couplings.

In short-- A HOSE BUILT BY A MANUFACTURER OF RUBBER HOSE, SOLD ON ITS MERITS.

Our nearest branch will deliver to you promptly.

BALTIMORE, MD. ____112 W. Pratt St.
BOSTON, MASS. _____200 Congress St.
BUFFALO, N. Y. _____885 Niagara St.
CHICAGO, ILL. ____27 West Illinois St.
CLEVELAND, O. ___203 Perry Payne Bldg.
DAYTON, O. _____116 So. St. Clair St.
DETROIT, MICH. _____5423 12th St.
NEW YORK, N. Y. _____152 Chambers St.
PHILADELPHIA, PA. ___313-319 New St.
PITTSBURGH, PA. _____300 Penn Ave.
ST. LOUIS, MO. _____221-223 No. 3rd St.
TOLEDO, O. _____415 Michigan St.

Continental Rubber Works
Erie, Pa., U.S.A.

and from four to eight 30-gallon oil storage tanks. Each pump is connected with a storage tank. These tanks are of a minimum capacity of 550 gallons. Hand or air operated gasoline pumps are optional with the operator.

The middle west manufacturer's model occupies space of 2½ by 18 feet. The unit is designed for installation on a concrete base. Its equipment consists of two or more meter gasoline pumps, six 30-gallon lubricating oil tanks with quart stroke pumps, air compressor with hose, and a water hose ready to connect with the water line.

Underground are the gasoline storage tanks, with the vent pipe going through the canopy. A structural steel frame encloses the oil tanks and air compressor and supports the canopy roof. The compartment with the air compressor is paneled with steel top and sides.

A steel hood is fitted between the four steel canopy supports balanced with weights. At night this hood is lowered to enclose the oil storage tanks and pumps and the air compressor. The gasoline pump hoses may be enclosed under the hood also.

A larger "Stationette" made by this company contains the same equipment, and has a small room for the attendant.

The chief advantage of the portable unit reported by Pacific coast companies is its high salvage value. A small loss is entailed if the unit is anchored on a concrete base, but outside of this the entire unit may be removed quickly and set up at another location, making the unit practically 100 per cent efficient.

This unit also provides additional gasoline outlets with small investments.

Marketers looking with disfavor on the portable station point out that it cuts into the business done at regular service stations, that the unit does not create new business, but reduces the volume of all stations.

An Open Book of U. S. Achievements

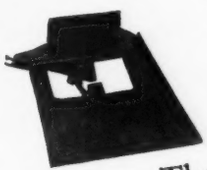
SEVERAL YEARS ago when yawning grease pits and crudely fashioned grease racks still challenged the courage of lubrication-minded motorists, U. S. Engineers began developing the now famous U. S. Full Hydraulic Car Lift.

Scores of designs and construction features were tried . . . . but only those features able to stand the *inflexible U. S. test of perfection* were retained. When early in 1930 the perfected U. S. Car Lift was introduced, it marked a high spot in automotive development.

1931 finds the U. S. Lift with added refinements that make it more than ever a super-lift.

A new and exclusive Dual Air Control Valve confines both exhaust and intake of air at the tank to one simple time-saving operation.

New and exclusive automatic chock blocks, 100% automatic in operation, completely eliminate any danger of car rolling off drive-on type lifts.



In addition to these refinements all features that made the 1930 model U. S. lifts famous, are retained. The coupon brings you complete information on the 1931 U. S. Car Lift. Send it today.

The new and improved U. S. Electric High Pressure Grease Gun. Read the history of its development in next month's issue.

U.S. AIR COMPRESSOR COMPANY

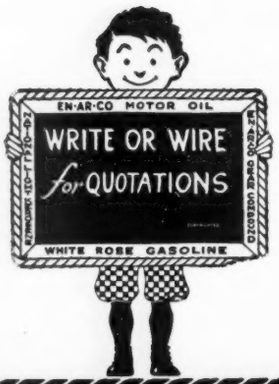
5314 Harvard Avenue · Cleveland, Ohio
West Coast Branch: 433 W. Pico St., Los Angeles, Calif.

U. S. AIR COMPRESSOR COMPANY
5314 Harvard Ave., Cleveland, Ohio
Please send me your latest catalog. I am interested in

—Full Hydraulic Car Lifts —Air Compressors
—Paint Spray Units —Grease Guns —Car Washers

Name _____
Address _____
City _____

Manufacturers of Air Compressors, Paint Spray Units, Car Washers, High Pressure Grease Guns, and Full Hydraulic Car Lifts



En-ar-co
MOTOR OIL
White Rose
GASOLINE

YOU will make money if you handle these nationally advertised brands.

All grades of lubricating oils and greases.

The National Refining Co.
Cleveland, Ohio

Special Muleskin Folio

Your Name in Gold FREE

Complete Net $7.50

362K—Special made folio from heavy double weight muleskin in handsome shark grain. Has three pockets, heavy leather straps and handle, gold lock, bottom reinforced with steel studs. Inner case contains six 4-oz. bottles, partitioned separately, lined with red velvet. Metal capped corks furnished. Case also contains five grease jars.

Other styles in our FREE Catalog

L-U-C-E

Builders of Sales Luggage

614 Delaware, Kansas City, Mo.

ON THE LAZY BENCH

"Oh, Say, Can You See—

The patriotism of Louis Randolph gave Wake county, N. C., officers cause for marvel.

Over his filling station there floated perpetually the stars and stripes of the American flag.

One peculiarity, however, troubled the men of the law. Sometimes the flag flew brilliantly into the wind; again, and with no apparent reason, it was furled.

They investigated.

They reached Randolph's establishment, found two half gallon jars and minor receptacles full of whiskey and arrested Randolph.

When the flag waved, the deputies said, there was whiskey for sale; when it was furled, there was none.

* * *

Roughneck: "What is a petroleum engineer?"

Driller: "A geologist who has seen a drilling rig."

—Independent Topics

* * *

The true value of horse sense is shown by the fact that the horse was afraid of the automobile during the period in which the pedestrian laughed at it.

—Our Sun

* * *

Hint to Nature

R. DeRemer (Richfield) says —"Another good place for a zipper would be on string beans."

—The Oil Can

* * *

Rod Smith: "What'cha been drinkin'?"

Bob Rope: "Carbona."

Rod Smith: "My Gawd, man, that's cleaning fluid."

Bob Rope: "Yesh, I had spotsh in front of my eyes."

—Pipe Line News

* * *

The most common impediment in American speech is chewing gum.

—Our Sun

"Daughters need discipline at times," remarked Mrs. Hiflyer.

"They certainly do," snapped Mrs. Upallnight. "My Margery's sixteen, but only last night I had to send her to bed without breakfast."

—Arknatco

* * *

Fat man (fondling baby): "What do you think of my son, Jim?"

Jim (surveying father): "Well, I'd say that he was a stave off the old barrel."

—Pipe Line News

* * *

"What I say always goes."

"Well then, say 'Flivver,' because this one we're in is sure stalled."

—The Oil Can

* * *

A stout woman drove up to a filling station: "I want two quarts of oil," she said.

"What kind, heavy?" asked the attendant.

"Say, young man, don't get fresh with me," was the indignant response.

—Independent Topics

* * *

"I tell you I won't have this room," protested the old lady to the Bell Boy. "I ain't goin' to pay my good money for a pig sty with a measley little folding bed in it. You think that jest because I'm from the country—"

Disgusted, the boy cut her short, "Get in, Mum, get in, this ain't your room, it's the elevator."

—Arknatco

* * *

"I have a cold or something in my head."

"A cold undoubtedly."

—Our Sun

* * *

Customer: Last week I bought a tire cover from you, and now I want my money back.

Clerk: Why?

Customer: I put it on one of my tires and hadn't driven ten miles before the blamed thing wore out!

—Independent Topics

ADVERTISING PAGES REMOVED

Crude Production by Fields

By Telegraph—Daily average gross output, by fields in U. S., for week ending with dates below as compiled by A. P. I.

PRODUCTION SUMMARY

	Feb. 14	Feb. 7
Production east of Rockies	1,599,100	1,588,700
Increase		10,400
Total production in U. S.	2,127,700	2,116,500
Increase		11,200
Crude oil imports	134,145	200,855
Decrease		66,710
Total new crude supply	2,261,845	2,317,355
Decrease		55,510

OKLAHOMA

	Feb. 14	Feb. 7
Allen Dome	12,800	12,350
Asher	700	700
Asher, West	8,450	8,000
Blackwell	2,750	2,750
Bowlegs	13,150	11 500
Braman	1,850	1 850
Bristow-Slick	12 100	12 000
Burbank	13,400	13 400
Carr City	10,650	13,050
Cromwell	4,800	4,800
Cushing	12,850	12,800
Davenport	900	900
Duncan Dist.	6,850	6,800
Earlsboro	17,900	14,200
Earlsboro, E.	20,050	13,800
Earlsboro, So.	7,350	7,000
Fox	950	950
Garber	4,200	4,150
Graham	2,900	2,800
Healdton	10,200	9,750
Hewitt	6,050	6,000
Hubbard	900	900
Konawa	15,450	15,900
Little River	23,900	21,800
Little River, E.	10,250	9,950
Logan Co.	3,600	3,700
Maud	2,500	2,400
Mission	7,800	4,250
Oklahoma City	88,750	102,700
Okmulgee, No.	8,150	8,150
Okmulgee, So.	4,500	4,500
Osage (Outside Burbank)	22,450	22,500
Papoose	2,050	2,100
Pearson	550	600
Sasakwa	3,800	3,950
St. Louis	20,650	19,450
Scholem-Alechem	12,000	12,000
Searight	5,350	5,650
Seminole	14,500	11,500
Seminole, E.	1,900	1,800
Thomas	600	600
Tonkawa	5,000	5,000
Wewoka	10,700	12,000
Yale-Jennings	5,400	5,550
Others	32,650	32,150
Total, Okla.	474,250	468,650
Increase		5,600

KANSAS

August-Fox Bush	3,100	3,100
Churchill	4,000	4,000
El Dorado-Towanda	13,200	13,200
Florence-Covert	800	800
Greenwood Co.	17,100	17,000
Oxford	2,400	2,400
Peabody-Elbing	1,600	1,600
Rainbow Bend	1,150	1,150
Russell	3,200	3,200
Sedgwick Co.	20,800	19,300
Voshell	26,900	18,000
Others	25,000	25,500
Total, Kans.	119,250	109,250
Increase		10,000

North Louisiana

Caddo, light	8,200	8,150
Caddo, heavy	2,750	2,850
Cotton Valley	1,900	1,800
De Soto and Red River	2,750	2,750
Haynesville	5,650	5,600
Holly	750	800
Homer	3,350	3,350
Sarepta		
Carterville	1,850	1,800
Urania	4,850	4,900
Zwolle	11,000	10,000
Others	1,500	1,500
Total, N. La.	44,550	43,500
Increase		1,050

ARKANSAS

Champagnolle	4,450	4,500
El Dorado	3,800	3,850
Lisbon	750	800
Nevada	1,000	1,000
Smackover, light	4,450	4,450
Smackover, heavy	33,450	33,500
Stephens	850	850
Others	1,100	1,100
Total, Ark.	49,850	50,050
Decrease		200

ROCKY MOUNTAIN

Wyoming

Big Muddy	1,900	1,900
Elk Basin	700	600
Grass Creek	2,100	2,150
Labarge	1,850	1,700
Lance Creek	150	150
Lost Soldier	4,300	7,200
Oregon Basin	1,900	1,900
Rock River	2,000	2,000
Salt Creek	25,250	28,100
Others	3,750	5,100
Total, Wyo.	43,900	50,800
Decrease		6,900

Montana

Cat Creek	1,100	1,100
Pondera	1,950	1,550
Sunburst	4,500	4,500
Others	1,450	50
Total, Mont.	9,000	7,200
Increase		1,800

Colorado

Florence	400	400
Fort Collins	1,100	1,100
Moffat (Craig)	1,100	1,100
Others	1,750	1,800
Total, Colo.	4,350	4.400
Decrease		50

New Mexico

Artesia	600	600
Bal. Eddy Co.	100	100
Hobbs High	32,700	32,600
Bal. Lea. Co.	6,250	6,250
Hogback	450	450
Rattlesnake	1,150	1,150
Table Mesa	100	100
Total, N. M.	41,350	41,250
Increase		100
Total, Rocky Mountain	98,600	103,650
Decrease		5,050

TEXAS (OUTSIDE GULF COAST)

Panhandle District

Carson Co.	3,750	3,700
Gray Co.	40,600	44,000
Hutchinson Co.	8,750	8,600
Wheeler Co.	300	350
Others	300	350
Total, Panhandle Tex.	53,700	57,000
Decrease		3,300

North Texas

Archer Co.	12,550	12,300
Burkburnett	7,600	7,500
Electra	8,700	8,600
Iowa Park and K. M. A.	3,750	3,700
Montague-Cooke	6,200	6,400
Wilbarger	10,500	13,000
Young Co., No.	8,500	9,850
Others	1,550	1,500
Total, N. Tex.	59,350	62,850
Decrease		3,500

West Central Texas

Brown Co.	3,750	3,800
Callahan Co.	1,500	1,500
Coleman Co.	900	1,000
Eastland-Desdemona	3,850	3,850
Jack Co.	950	1,300
Palo Pinto Co.	400	400
Shackleford Co.	3,850	3,900
Stephens Co.	4,600	4,600
Throckmorton Co.	550	550
Young Co., So.	2,500	2,200
Others	1,300	1,300
Total, West Cent. Tex.	24,150	24,400
Decrease		250

West Texas

Crane and Upton Co.'s	24,600	24,450
Crockett Co.	1,950	1,900
Ector Co.	6,500	5,500
Howard Co.	27,150	26,900
Jones Co.	1,200	1,200
Mitchell and Scurry Co.'s	2,000	2,000
Reagan Co.	31,550	32,000
Winkler Co.	52,000	50,900
Yates	88,700	90,950
Bal. Pecos Co.	3,500	3,500
Others	6,350	6,300
Total, West Texas	245,500	245,600
Decrease		100

East Central Texas

Boggy Creek	2,500	2,550
Corsicana-Powell	4,850	5,200
Currie	300	350
Joinerfield-Bradford		7,350
Mexia	3,800	3,900
Nigger Creek	150	150
Richland	100	150
Rusk-Gregg Counties	12,150	
Van Zandt	30,550	29,000
Wortham	600	650
Others	550	50
Total, E. Cen. Tex.	55,050	49,350
Increase		5,700

Southwest Texas

Chapmann Abbot	6,000	5,850
Dale	250	250
Darst Creek	32,750	32,200
Laredo Dist.	13,500	13,600
Luling	9,650	9,700
Lytton Spgs.	700	750
Salt Flat	16,400	11,400
Somerset	1,300	1,300
Others	550	600
Total, So. W. Texas	81,100	75,650
Increase		5,450
Total, Texas (Outside Gulf Coast)	518,850	514,850
Increase		4,000

GULF COAST

Coastal Texas

Barbers Hill	23,000	23,400
Batson	900	1,100
Big Creek	2,750	2,700
Blue Ridge	1,300	1,400
Boling	900	900
Damon Mound	550	700
Esperson	2,200	2,300
Fannett	800	1,100
Goose Creek	4,200	4,000
Hankamar	2,550	2,350
Hull	6,800	6,900
Humble	10,250	10,300
Moss Bluff	200	750
No. Dayton	600	700
Orange Co.	2,200	2,100
Orchard	2,200	2,100
Pettus	7,450	7,650
Pierce Junct.	8,400	8,900
Port Neches	1,550	1,550
Raccoon Bend	8,350	8,000
Refugio Co.	34,000	33,750
Saratoga	1,100	1,100
Somerville	2,250	2,850
Sour Lake	2,000	2,150
So. Liberty	2,550	2,700
Spindletop	12,450	12,200
Sugarland	11,900	12,300
West Columbia	4,000	4,300
Others	1,500	1,900
Total, Coastal Texas	158,900	162,150
Decrease		3,250

Coastal Louisiana

Edgerly	500	500
Evangeline	650	600
Hackberry, E.	2,600	3,900
Hackberry, Old	850	800
Lake Barre	3,400	3,400
Lockport	4,300	5,000
Port Barre	1,700	1,700
Sulphur Dome	2,100	2,050
Vinton	5,800	5,750
White Castle	950	1,000
Others	3,250	3,550
Total, Coastal La.	26,100	28,250
Decrease		2,150
Total, Gulf Coast	185,000	190,400
Decrease		5,400

CALIFORNIA

Dominguez	11,100	9,800
Elwood-Goleta	31,600	30,400
Huntington Beach	21,700	22,600
Inglewood	15,000	15,300
Kettleman Hills	27,000	27,000
Long Beach	93,600	90,500
Midway-Sunset	53,000	53,600
Playa del Rey	33,000	34,700
Santa Fe Spgs.	70,400	71,000
Seal Beach	13,200	16,600
Ventura Ave.	45,500	44,500
Others	113,500	111,800
Total, Calif.	528,600	527,800
Increase		800

EASTERN

(Not including Mich.)	99,500	99,100
Increase		400

MICHIGAN

Mt. Pleasant	7,050	7,050
Muskegon	2,000	2,000
Saginaw	200	200
Total, Mich.	9,250	9,250

Compilation Of Mid-Continent Refinery Operations

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Mid-Continent Refinery Operations, Week Ended Feb. 13 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	West Texas	North La.-Ark.	Total Week Ended Feb. 13
Plants Reporting....	12	29	25	15	12	93
Da. Av. Cap. (Bbls.)..	94,000	161,700	106,100	82,000	77,000	521,300
Da. Cracking Capacity	30,700	52,600	17,200	5,000	22,700	128,200
Da. Av. Crude Runs..	60,290 + 11.1	85,841 + 6.0	67,132 + 34.7	32,515 + 14.8	32,782 + 0.06	278,560 + 13.2
Da. Av. Other Oils...	5,151 +119.5	6,655 +212.3	3,010 + 15.9	349 — 67.9	16,982 + 70.5	32,147 + 77.4
GASOLINE—Gallons						
Stocks, Feb. 6.....	29,493,000	44,846,000	31,899,000	11,962,000	6,545,000	124,745,000
Prod. 2-6 to 2-13.....	10,492,000 + 1.9	14,609,000 + 6.2	10,344,000 + 86.1	2,976,000 + 6.7	5,446,000 + 29.5	43,867,000 +19.9
Ship. 2-6 to 2-13.....	10,372,000 + 2.0	16,070,000 + 8.8	8,761,000 + 6.3	2,670,000 — 34.6	5,476,000 + 12.0	43,349,000 — 2.8
Stocks, Feb. 13.....	29,613,000 + 0.4	43,385,000 — 3.3	33,482,000 + 5.0	12,268,000 + 2.6	6,515,000 — 0.5	125,263,000 + 0.4
Ratio Sales to Prod...	98.9%	110.0%	84.7%	89.7%	100.6%	98.8%
KEROSINE—Gallons						
Stocks, Feb. 6	9,394,000	14,512,000	2,229,000	20,000	395,000	26,550,000
Prod. 2-6 to 2-13.....	2,247,000 + 36.5	1,807,000 — 2.8	1,373,000 + 29.2	52,000 + 62.5	477,000 +102.1	5,956,000 + 23.2
Ship. 2-6 to 2-13.....	2,501,000 + 43.3	1,838,000 + 13.8	1,079,000 — 8.1	49,000 + 36.1	423,000 + 36.5	5,890,000 + 20.7
Stocks, Feb. 13.....	9,140,000 — 2.7	14,481,000 — 0.2	2,523,000 + 13.2	23,000 + 15.0	449,000 + 13.7	26,616,000 + 0.2
Ratio Sales to Prod...	111.3%	101.7%	78.6%	94.2%	88.7%	98.9%
STOVE DISTILLATE—Gallons						
Stocks, Feb. 6.....	3,585,000	4,413,000	879,000	68,000	10,000	8,955,000
Prod. 2-6 to 2-13.....	383,000 — 6.1	876,000 — 0.2	253,000 — 6.3	45,000	45,000 — 61.2	1,602,000 — 6.7
Ship. 2-6 to 2-13.....	506,000 — 4.9	404,000 — 76.2	436,000 + 40.6	31,000 — 52.3	55,000 — 57.7	1,432,000 — 47.6
Stocks, Feb. 13.....	3,462,000 — 3.4	4,885,000 + 10.7	696,000 — 20.8	82,000 + 20.6	....	9,125,000 + 1.9
Ratio Sales to Prod...	132.1%	46.1%	172.3%	68.9%	122.2%	89.4%
GAS OIL—Gallons						
Stocks, Feb. 6.....	3,249,000	28,680,000	2,491,000	5,514,000	6,464,000	46,398,000
Prod. 2-6 to 2-13.....	627,000 + 26.7	1,595,000 +159.3	2,000	676,000 + 0.4	2,222,000 + 44.7	5,118,000 + 34.7
Ship. 2-6 to 2-13.....	594,000 + 11.9	2,008,000 + 46.4	378,000 — 52.2	1,193,000 +158.2	2,151,000 + 46.8	6,324,000 + 36.9
Stocks, Feb. 13.....	3,282,000 + 1.0	28,267,000 — 1.4	2,111,000 — 15.3	4,997,000 — 9.4	6,535,000 + 1.1	45,192,000 — 2.6
Ratio Sales to Prod...	94.7%	125.9%	.....	176.5%	96.8%	123.6%
FUEL OIL—Gallons						
Stocks, Feb. 6.....	16,565,000	47,241,000	63,077,000	15,175,000	19,365,000	161,423,000
Prod. 2-6 to 2-13.....	4,033,000 — 2.0	5,179,000 + 18.1	7,649,000 + 27.3	4,589,000 + 23.6	4,209,000 + 14.6	25,659,000 + 17.2
Ship. 2-6 to 2-13.....	3,001,000 — 47.7	1,738,000 — 76.0	7,383,000 + 12.3	4,228,000 — 15.8	3,741,000 — 13.8	20,091,000 — 30.5
Stocks, Feb. 13.....	17,597,000 + 6.2	50,682,000 + 7.3	63,343,000 + 0.4	15,536,000 + 2.4	19,833,000 + 2.4	166,991,000 + 3.4
Ratio Sales to Prod...	74.4%	33.6%	96.5%	92.1%	88.9%	78.3%

Gasoline Produced by Various Methods, Week Ended February 13

	Kansas	% of Total	Oklahoma	% of Total	North & Cent. Texas	% of Total	West Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run.....	6,184,000	58.9	9,262,000	63.4	6,454,000	62.4	2,669,000	89.7	1,717,000	31.5	26,286,000	60.0
Cracked.....	3,356,000	32.0	4,249,000	29.1	2,207,000	21.3	229,000	7.7	2,829,000	51.9	12,870,000	29.3
Natural.....	952,000	9.1	1,098,000	7.5	1,683,000	16.3	78,000	2.6	900,000	16.6	4,711,000	10.7
Total.....	10,492,000		14,609,000		10,344,000		2,976,000		5,446,000		43,867,000	

+ or — columns are % change over previous week.

Mid-Continent Refiners Increase Crude Runs 32,500 Barrels

Staff Special—By Telegraph
TULSA, Feb. 16

THE Mid-Continent statistical position lost in the week ended Feb. 13 the ground it had gained the first week in February. Refiners reporting weekly operations to NATIONAL PETROLEUM NEWS jumped their crude runs a daily average of 32,450 barrels and increased their gasoline production 7,267,000 gallons.

Crude runs and gasoline production had declined approximately these amounts the first week of the month.

All districts contributed to the total increase in crude runs. North Texas refiners almost doubled their daily average runs. Louisiana and Arkansas refiners made the smallest increase. Their daily average was up only 21 barrels. Runs of other oils for the Mid-Continent as a whole increased 14,023 barrels daily average.

Gasoline shipments increased 1,705,000 gallons and stocks were up approximately 500,000 gallons. Oklahoma and Louisiana-Arkansas refin-

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended Feb. 13. Change in stocks figures from Jan. 16.

GASOLINE

	Gallons
Production	170,696,000
Shipments	164,394,000
Net change in stocks	+6,302,000
Ratio sales to production	96.3%

KEROSINE

	Gallons
Production	22,158,000
Shipments	23,344,000
Net change in stocks	—1,186,000
Ratio sales to production	105.4%

STOVE DISTILLATE

	Gallons
Production	8,871,000
Shipments	9,407,000
Net change in stocks	—536,000
Ratio sales to production	106.0%

GAS OIL

	Gallons
Production	20,223,000
Shipments	23,889,000
Net change in stocks	—3,666,000
Ratio sales to production	118.1%

FUEL OIL

	Gallons
Production	98,495,000
Shipments	101,535,000
Net change in stocks	—3,040,000
Ratio sales to production	103.1%

ers were the only ones to draw on storage.

Kerosine production and shipments each increased approximately 1,000,000 gallons. Stocks were up only 66,000 gallons. Stove distillate production was down slightly. Shipments decreased more than 1,000,000 gallons, with stocks showing minor increase.

Both production and shipments of gas oil increased substantially. Stocks were off more than 1,000,000 gallons.

Fuel oil stocks rose 5,568,000 gallons. Output increased 3,761,000 gallons and shipments dropped 8,828,000 gallons.

Conditioning

(*Continued from page* 61)

this forming barium sulfate and sodium carbonate, all of which is illustrated by the following reactions.

$$Ca(HCO_3)_2 + Ca(OH)_2 = \underline{\underline{2CaCO_3}} + 2H_2O$$

$$CaSO_4 + BaCO_3 = \underline{\underline{BaSO_4}} + \underline{\underline{CaCO_3}}$$

$$Na_2SO_4 + BaCO_3 = \underline{\underline{BaSO_4}} + Na_2CO_3$$

The cost of this treatment is higher than the usual lime soda process, but has the advantage of removing soluble sulfates where these are present in large quantities. Where larger quantities of sodium sulfate are to be converted, the formation of sodium carbonate in excessive amounts must be closely watched, as excessive amounts of sodium carbonate may cause embrittlement condition, especially in high pressure boilers.

Philadelphia Oil Men Banquet at Ritz

PHILADELPHIA, Feb. 14.—The Ritz-Carlton Hotel here was the scene of the annual banquet of the Oil Trade Association of Philadelphia held Jan. 29.

At the annual election of officers, Charles Dorrance Jones, oil and grease jobber here, was elected president to succeed Joseph M. Patterson. Mr. Patterson remains a director whose term expires in 1932.

Other officers elected include Stanley W. Rusk, president, Rusk Oil Co., Inc., vice president; James H. Stevenson, Stevenson Bro. & Co., treasurer; and Howard M. Rogers, owner, Charles K. Smith Co., who was re-elected secretary.

Directors, who will serve for two years include: C. A. Borda, John L. Wilson, W. F. Fancourt, Jr., and Otto A. C. Hagan. A. H. Ireland, Cities Service Oil Co., and Harry J. Walter, are the two other directors whose terms expire in 1932.

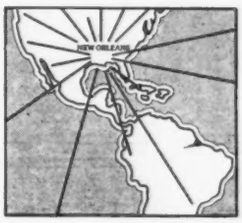
J. Hampton Moore, former mayor of Philadelphia, delivered an instructive talk on waterways.

New Business in 1931?
Sure — And keeping Our Old.

We pride ourselves on keeping our old friends, here at International. Your order is made up to your specifications under the direct and personal care of a technically trained expert—an officer of the Company.

This close attention on the part of the owners of the business to the actual processing of every batch of grease, is one of the main reasons for the absolute uniformity of International greases. If you want QUALITY GREASES, send your next order to International.

Let us know your requirements. We will respond promptly with samples and prices.



Manufacturers of Automotive, Industrial and Marine Greases, of high quality and absolute uniformity.

For sale only to jobbers and refiners. Excellent facilities for export of Quality Greases and Motor Oils.

WITH QUALITY COMES LEADERSHIP

QUALITY I SERVICE L C AROUND THE WORLD

International Lubricant Corporation

NEW ORLEANS LOUISIANA

There is a constant market in used equipment

Take advantage of the savings possible by buying what you need or selling what you don't need.

An advertisement in our classified section costs only $4 an inch with a border and display heading. Without a border 10 cents a word, minimum charge $3.

Tell them your needs in next week's issue.

APPROVED officially

ALL states which require official approval have accepted the Worthington Meter-and-Clock Unit for gasoline filling station pumps. And the Underwriters Laboratories have certified to its passing every test.

But over and above any official approval stands the Worthington guarantee of satisfactory performance . . . backed by an organization whose products *must* live up to the promises made for them.

The Worthington Unit is as accurate at low speeds as at high speeds. Specific evidence of its low maintenance requirements and exceptional reliability are found in the results of a trial conducted recently by a prominent manufacturer of filling station pumps. After passing 2,000,000 gallons of commercial grade gasoline at high speed, the Worthington Unit successfully met the usual official tests.

Users of this type of equipment are invited to see Worthington's modern methods of manufacturing, inspection and testing in the Worthington Meter Shop at the Harrison, N. J., Works. Worthington is prepared to conduct tests in the plants of users when desired.

PUMPS
COMPRESSORS
Stationary and Portable
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Refinery - Tank Wagon Markets

Gasolines Advance on Atlantic Coast, Fall in Mid-Continent

SUBSTANTIAL advances in gasoline prices on the Atlantic seaboard were the outstanding development in refinery markets of the country. There was a tendency toward lower quotations in middle western refinery markets and reductions in tank wagon and retail prices in Ohio and at certain points in Standard of Indiana territory.

On the East Coast, 11 refiners advanced their prices during the week. Most advanced their quotations 0.50 cent per gallon to 7.5 cents. At least one company raised its price a full cent to 8 cents per gallon at New York harbor. A few companies in New England and farther south had not met the advance at the close of the week but were expected to make changes soon.

In the middle west gasoline market, spot buying was light although weather conditions were favorable and jobbers were taking out contract commitments satisfactorily. The lack of spot buying in the Mid-Continent was attributed by refiners to a more cautious attitude by jobbers resulting from the uncertainty over proration and the crude oil market. The new East Texas fields also have cast somewhat of a shadow over speculative buying.

With spot gasoline buying lower refiners in several districts dropped their prices 0.125 to 0.25 cent per gallon. U. S. Motor gasoline was available to the trade at 4 cents per gallon on a Group, 3 freight basis.

On the Gulf Coast there was no inquiry from foreign sources for either gasoline or kerosine. Roumanian refiners are said to be supplying European buyers with gasoline at prices which will figure back 0.25 to 0.50 cent per gallon below the Gulf market.

Fuel oils were active in California. Furnace oils in several districts were in good demand as a result of cooler weather. Bunker oil prices in most fields were unchanged.

Neutral oils were scarce in the Pennsylvania field during the week. Demand appeared to be in excess of the current supply, with the result that prices made wide gains. Prices on some grades advanced as much as 2.50 cents per gallon.

The Pennsylvania neutral oil flurry was not reflected in the Mid-Continent, although possibly there was some stabilization of quotation there. Bright stocks were largely unchanged.

Wax buyers were seeking small lots for prompt shipment at New York. Pennsylvania waxes were quiet but Mid-Continent refiners reported more inquiry.

Tank Car Gasoline Prices Drop at Chicago

Staff Special
CHICAGO, Feb. 14.

REDUCTIONS in retail gasoline prices in Ohio and at several points in the Standard of Indiana territory were possibly the outstanding events of interest in the middle west during the week ended Feb. 14.

The major points affected in the Indiana territory were Chicago, St. Louis, East St. Louis and Indianapolis. These reductions were made, it is said, to stimulate gasoline consumption and to try and narrow the margin between the major company prices and the trackage stations who generally sell at a cut price.

Spot tank car gasoline buying remained light in the Chicago market despite generally favorable motoring weather over the middle west. Shipments were reported satisfactory by sellers who have most of their output sold on contracts. A number of refiners reported their gasoline demand had been heavy enough, along with reduced crude runs, to keep their storage at a low enough point that they did not have to offer any goods on the spot market.

Reduction of 0.125 cents in spot tank car gasoline prices were made in practically all refinery markets during the week. In Chicago the low of the price range for U. S. Motor gasoline moving to jobbers was down from 4.125 to 4 cents.

While there was considerable Motor gasoline being offered at the 4-cent price, a number of sellers who generally keep their prices at the low of the market continued to ask 4.125 cents and said they were able to do a fair amount of business at this figure.

Carlot marketers reported they were able to purchase U. S. Motor in sizeable quantities at 3.875 cents and in a few instances at 3.75 cents. Some material also was moved for resale purposes at 4 cents.

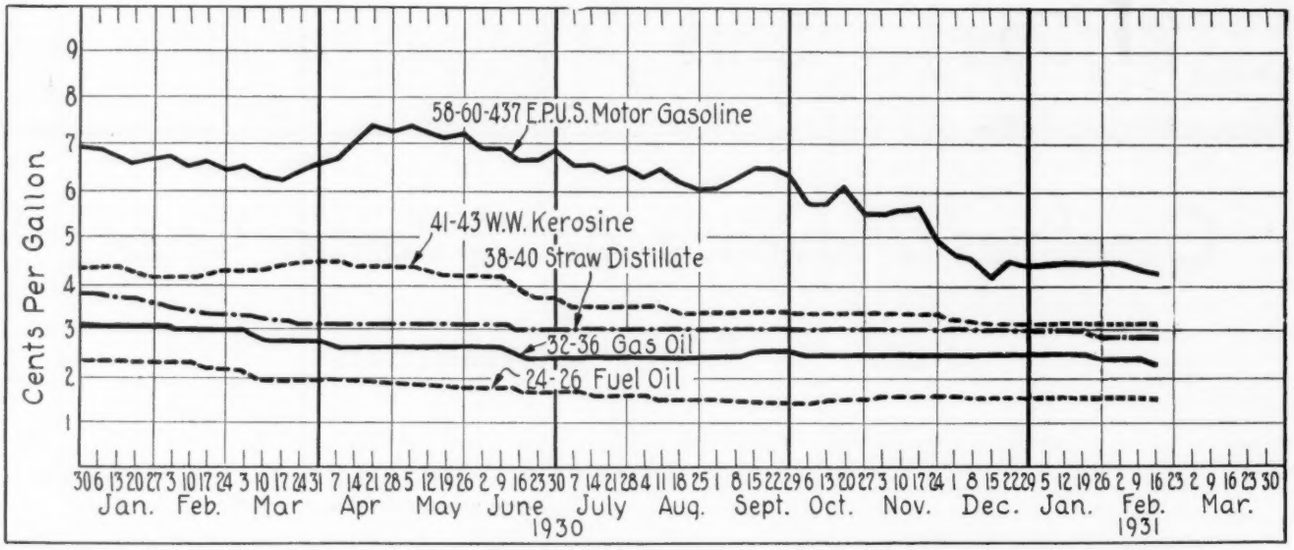
Refiners sales of U. S. Motor ranged mostly from 4 to 4.375 cents, with quotations reported up to 5 cents. Refiners quoting around the 5 cent price however, were those doing business solely on contracts and the netback on these was more nearly in line with the general run of spot market prices.

Although the demand for higher gravity gasolines, notably the 60-62, 400 and 437 e.p. grades, was better than for U. S. Motor in many quarters, prices of these products also were off about 0.125 cent.

No great amount of activity was apparent for kerosines. More 41-43 w.w. was reported moved at 3 cents than was the case the previous week and this price was established as the low of the price range. Some sales of this grade were reported at 2.90 to 3 cents, f.o.b. Group 3, for shipment from Indiana-Illinois refineries to differential points.

Tank wagon distributors of oil to

Current Prices of Principal Mid-Continent Refined Products


Cents Per Gallon
58-60-437 E.P.U.S. Motor Gasoline
41-43 W.W. Kerosine
38-40 Straw Distillate
32-36 Gas Oil
24-26 Fuel Oil
Jan. Feb. Mar Apr May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1930
1931

Prices shown are in Group 3 basis and extended to date shown in Refinery Market Tables Section of this issue

home burner owners enjoyed a better demand last week as a result of colder weather, but this was not heavy enough to have any noticeable effect on tank car buying. Distillate prices moved downward, gas and fuel oils were about unchanged.

Oil Burner Association Plans For Record Meet

NEW YORK, Feb. 16.—Merchandising problems will occupy the spotlight at the eighth annual convention of the American Oil Burner Association to be held at the Benjamin Franklin Hotel, Philadelphia, April 13 to 18.

J. T. Foley, chief auditor, Richfield Oil Corp., Los Angeles, will be one of the speakers. Others include Haldeman Finnie, vice president and general manager, Timken-Detroit Co.; Lionel L. Jacobs, president, Electrol of New Jersey; H. Barley, vice president, Enterprise Oil Burner Co.; A. J. Fleischmann, treasurer, May Oil Burner Corp.; and H. B. Dexter, assistant sales manager, Petroleum Heat & Power Co.

Merchandising sessions will be held under the chairmanship of Earl Marr, president, Marr Oil Heat Machine Corp. and John A. Berghoff, general manager, Wayne Home Equipment Co.

An engineering session, which will be under the chairmanship of John H. McIlvaine, president, McIlvaine Burner Co., will include Wiley Butler, Standard Oil Co. of New Jersey, as one of its speakers. Other speakers at that session will be: P. S. Russell, Detroit Lubricator Co.; J. T. McFarnahan, general manager, Holby Burner Corp. and Professor L. E. Seeley, of the Sheffield Scientific School of Yale University.

A record number of exhibitors is expected to display oil burners and accessories, according to Harry F. Tapp, executive secretary of the association. He reports 72 have already signed up for 120 booths.

The oil companies who have already signed up for exhibits include the Standard Oil Co. of New Jersey, the Standard Oil Co. of New York and the Sinclair Refining Co.

CLEVELAND—At the annual meeting of the Blackmer Pump Co., Grand Rapids, Mich., Feb. 9, Geo. C. Shaffer was elected vice president. A. B. Klise, president, and M. G. Klise, secretary-treasurer were re-elected. The company reported 1930 was a most successful year and every indication points to another big year in 1931.

Shipments From Southern California

LOS ANGELES, Feb. 12—Bulk petroleum shipments from southern California ports to Foreign and Atlantic Seaboard ports for week ended Feb. 7 totaled 1,274,229 barrels as compared with 917,639 barrels shipped to the same ports the previous week. Destination and quantity of shipments were as follows:

Destination	Crude	Gasoline	Kerosine	Diesel	Fuel	Batching Oil	Total
Pacific For.	104,277	111,809	76,918	54,128	280,887	1,670	629,689
Atlantic Dom.	.....	502,517	.....	.....	.....	.....	502,517
Atlantic For.	.....	73,566	.....	.....	68,457	.....	142,023

Prices 10 Years Ago
Feb. 14, 1921

	Oklahoma	Penna.
58-60 U. S. Motor.....	14.25-14.50c	21.00-21.50c
80-84 Natural	10.00-12.00c	.....
Kerosine (42-43 Okla.; 47 w. w. Pa.)	5.25-5.50c	12.00c
Fuel Oil (24-26 Okla.; 36-40 Pa.)	$0.60-$0.70	5.25-5.50c
Crude (Okla. 35-35.9)	$1.75	$4.25
Chicago tank wagon (no state tax)		23.00c

Prices A Year Ago
Feb. 17, 1930

	Oklahoma	Penna.
58-60 U. S. Motor.....	6.5135c	7.50-7.75c
Grade A Natural.....	5.50-5.625c	.....
Kerosine (Okla. 41-43; Pa. 47 w. w.).....	4.125-4.25c	6.25-6.50c
Fuel Oil (Okla 24-26; Pa. 36-40)	$0.875-$0.925	4.75-5.00c
Crude (Okla. 35-35.9)..	$1.17	$2.75
Chicago tank wagon (including 3c tax).....		17.00c

Mid-Continent Refinery Markets

Gasoline Buying Slow; Prices Drop

Staff Special
TULSA, Feb. 14

THE Mid-Continent refinery market the second week of February experienced a slowing up in demand for several of the major commodities. Gasoline buying was somewhat lighter in volume and prices lost ground in several districts. Kerosines were in steady demand but distillates were sluggish. Fuel oils experienced little change.

Gasoline prices in Kansas, Oklahoma and north and west Texas moved downward from 0.125 to 0.25 cent a gallon late in the week. Sellers reported contract movement had been lighter and spot orders came in considerably slower than had been anticipated. The Louisiana and Arkansas refiners were the only ones who experienced no change in their prices.

Weather conditions may have had some influence on the demand for gasoline, but the consensus among sellers here was that the plentiful publicity with reference to the crude oil market situation, and the possibilities of the new east Texas field had caused jobbers to renew their cautions buying tactics.

Many jobbers also realize from past experience that a stretch of fair weather early in the year does not presage an early spring, and many of them have not been overly anxious to get much gasoline in storage. There undoubtedly was some buying for storage early in the year, but the favorable weather made drains on this storage and the jobbers who bought were forced to continue buying more often than they had anticipated.

U. S. Motor gasoline was offered late in the week at 4 cents and up in the Mid-Continent, with marketers reporting that their buying prices ranged from 3.75 to 4 cents a gallon.

It would be difficult to say just where the first sag in prices occurred, but north and west Texas apparently were given credit for the drop.

One factor which may have affected north Texas was the complete absence this month of any export business. It will be recalled that about this time last year export buyers were taking approximately 20,000,000 gallons of gasoline a month from the Mid-Continent.

Natural gasolines held their ground well throughout the week. Grade AA was well pegged at 3.50 cents a gallon except for Feb. 12 when the price range was 3.25 to 3.50 cents. On that date one company had 25 cars of grade AA which was located at a point where the export rates to the Gulf do not apply. The company was offered 3.50 cents for the gasoline, on a Texas 20.5 cent export rate, but the freight differential would have been such that the company would have obtained a fraction less than 3.25 cents a gallon. The company accordingly sold the gasoline on a regular Group 3 freight rate of 24.5 cents a gallon.

The lower grades experienced no changes in prices with demand sufficient to prevent any appreciable amount appearing on the open market at concession prices.

Kerosine demand was fairly constant throughout the week. Prices for 41-43 w.w. grade except untreated material, ranged from 3 to 3.25 cents a gallon.

Kansas refiners reduced prices slightly late in the week, to bring quotations more nearly in line with those from other districts. Demand was reported fair by most refiners in that district.

The mild weather continued to affect the distillate demand considerably and a few sellers the past week began to reduce their stocks at prices slightly under those which they had quoted earlier in the year. No appreciable break was noted, however, in the quotation range. Refiners reported takings on contracts were comparatively light.

Ordinary grades of gas oil were fairly free, several sellers reported. Odd cars were reported moved at under 2 cents a gallon, but the bulk of sales of U. G. I. grade were at 2 cents and up.

The zero cold test oil was in slightly better demand late in the week, after prices had dropped 0.125 to 0.25 cent a gallon.

No changes were noted in the quotations for ordinary grades of fuel oil. Some excessively high cold test oil from Texas was reported moved at under prevailing quotations but the sale was not considered representative of the market.

The advance in Pennsylvania neutral oils prices apparently had little effect in the Mid-Continent, except for possible stabilization of prices. Demand was reported to have been only fair the past week.

Bright stocks prices were unchanged from the previous week. Demand was light.

Inquiries for wax were reported more numerous, and one or two refiners said they were sold up for the remainder of this month and had made no March quotations. The prevailing quotation for the 124-126 white crude scale grade was 2 cents a pound.

Gulf Coastal Water Shipments—January Compared With December
(All figures in Barrels of 42 Gallons)

Company—Port	Coastwise Refined December	Coastwise Refined January	Export Refined December	Export Refined January
Standard of Louisiana, Baton Rouge	394,845.00	964,192.00	550,565.00	863,028.00
The Texas Company, Port Arthur	2,010,623.90	2,414,637.48	122,573.75	261,505.74
Gulf Refining Co. Port Arthur	2,010,623.90	2,414,637.48	122,573.75	261,503.74
Magnolia Petroleum Co., Beaumont	1,575,782.35	2,365,108.59*	.....	.....
Humble Oil & Refg. Co., Baytown	1,078,985.79	1,039,128.75	1,798,341.11	1,507,657.69
Atlantic Oil Prod. Co., Atreco	26,249.05	.....	.....	.....
Pure Oil Co., Smiths Bluff	365,716.31	395,841.85	.....	.....
TOTALS	6,250,324.40	8,124,075.67	2,572,318.86	3,166,968.43

	Coastwise Crude		Export Crude	
Standard of Louisiana, Baton Rouge	266,912.00	118,836.00	80,050.00	.....
The Texas Company, Port Arthur	444,974.00	284,879.00	.....	.....
Gulf Refining Co., Port Arthur	348,402.12	277,387.54	.....	.....
Magnolia Petroleum Co., Beaumont	614,956.66	625,547.64*	.....	.....
Humble Oil & Refg. Co., Texas City	536,627.00	478,314.00	.....	.....
Ingleside	131,624.00	167,653.00	.....	.....
Baytown	76,654.00	109,004.00	.....	.....
Harbor Island	2,176,904.00	1,555,395.00	.....	.....
Neches	73,084.00	.....	.....	.....
Atlantic Oil Prod. Co., Atreco	843,409.72	988,529.04	.....	.....
Beaumont	54,105.69	.....	.....	.....
Pure Oil Company, Smiths Bluff	441,036.26	769,138.21	.....	.....
Sun Oil Company, Sabine Pass	1,013,732.00	1,204,680.00	.....	.....
TOTALS	7,022,421.45	6,579,363.43	80,050.00	.....

*Magnolia Petroleum Company makes no distinction in reports between coastwise and export shipments.

Comparative Prices of 58-60 U. S. Motor Gasoline, 437 E. P., Group 3 and Point of Origin, to Jobbers Only

In Effect February 16

	Price F.O.B. Group 3	*Price F.O.B. Point of Origin*	*If for Particular Destination*
Oklahoma	4.00 –4.50	4.00 –4.50	
Kansas	4.00 –4.50		S. O. Neb. & Indiana Territories, etc.
Kansas		4.25 –4.50	Kansas only.
North Texas	4.00 –4.25	4.00 –4.25	
West Texas	4.00 –4.125	4.00 –4.125	
Louisiana-Arkansas	4.25 –4.50		Michigan, Ohio and Indiana.
Louisiana-Arkansas		4.75 –5.00	State or differential haul.
Indiana-Illinois	4.00 –4.75	*	S. O. Indiana territory except Detroit and vicinity. For Ohio on delivered basis only.

*Shipments made from E. Chicago, Ind., and Wood River, Ill., according to conditions and freight rates; no prices F.O.B. point of origin can be given.

Chicago Resale Market

CHICAGO, Feb. 14

ALL grades of gasolines were off 0.125 cent in price in the Chicago market last week. Contract movement was reported satisfactory by most sellers, but the spot demand generally was light. Reductions in retail gasoline prices through Ohio and at a number of points in the Indiana territory contributed bearish influences to the general market.

Sales of U. S. Motor were reported mostly at 4 to 4.375 cents. Kerosines and distillates also were 0.125 cent lower over the week. Some 41-43 w.w. kerosine for differential territory shipment from Indiana-Illinois refineries moved at under 3 cents f.o.b. Group 3.

Following prices represent majority of sales made on Group 3 freight basis, although shipments may originate in other refining districts, such as North and West Texas, Arkansas, Louisiana, Indiana, Illinois, Kentucky, etc.

	Prices Feb. 16	**Prices Feb. 9**	**Prices Feb. 2**
58-60 U. S. Motor, 437 e.p.	4.00 – 4.375	4.125– 4.50	4.25 – 4.50
†56-62 400-437 e.p. anti-knock gasoline	4.50 – 5.375	4.50 – 5.50	4.50 – 5.50
60-62 437 e.p. gasoline	4.125– 4.50	4.25 – 4.50	4.375– 4.50
60-62 400 e.p. gasoline	4.25 – 4.625	4.375– 4.75	4.50 – 4.75
64-66 375 e.p. gasoline	4.75 – 5.125	4.875– 5.25	5.00 – 5.25
68-70 350-360 e.p. gasoline	5.00 – 5.375	5.25 – 5.75	5.25 – 5.75
*Domestic Aviation Gasoline	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25
41-43 w.w. kerosine	3.00 – 3.25	3.125– 3.25	3.125– 3.25
42-44 w.w. kerosine	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
38-40 p. w. distillate	2.625– 2.875	.....	.....
38-40 straw distillate	2.625– 2.75	2.75 – 2.875	2.75 – 2.875
32-36 ordinary dark gas oil	2.00 – 2.25	2.00 – 2.25	2.00 – 2.25
32-36 dark zero gas oil	2.375– 2.625	2.375– 2.625	2.375– 2.625
32-36 straw zero gas oil	2.50 – 2.75	2.50 – 2.75	2.50 – 2.75
28-30 zero fuel oil (per bbl.)	$0.85 –$0.90	$0.85 –$0.90	$0.85 –$0.90
28-30 fuel oil (per bbl.)	$0.80 –$0.85	$0.80 –$0.85	$0.80 –$0.85
24-26 fuel oil (per bbl.)	$0.60 –$0.65	$0.60 –$0.65	$0.60 –$0.65
18-22 fuel oil, low sulfur (per bbl.)	$0.50 –$0.55	$0.50 –$0.55	$0.50 –$0.55
18-22 fuel oil, high sulfur zero (per bbl.)	$0.55 –$0.60	$0.55 –$0.60	$0.55 –$0.60
14-16 fuel oil (per bbl.)	$0.40 –$0.45	$0.40 –$0.45	$0.40 –$0.45

*Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122° F.; 50% recovery at 221°; 90% at 311°; 96% at 347°; end point 374° F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

†Over 45% benzol equivalent. Prices represent quotations and sales.

THE weighted average method of reporting Oklahoma and Kansas gasoline prices has been discontinued. For high and low prices, see first page of Refinery Market Price Tables under the general heading: GASOLINE and NAPHTHA.

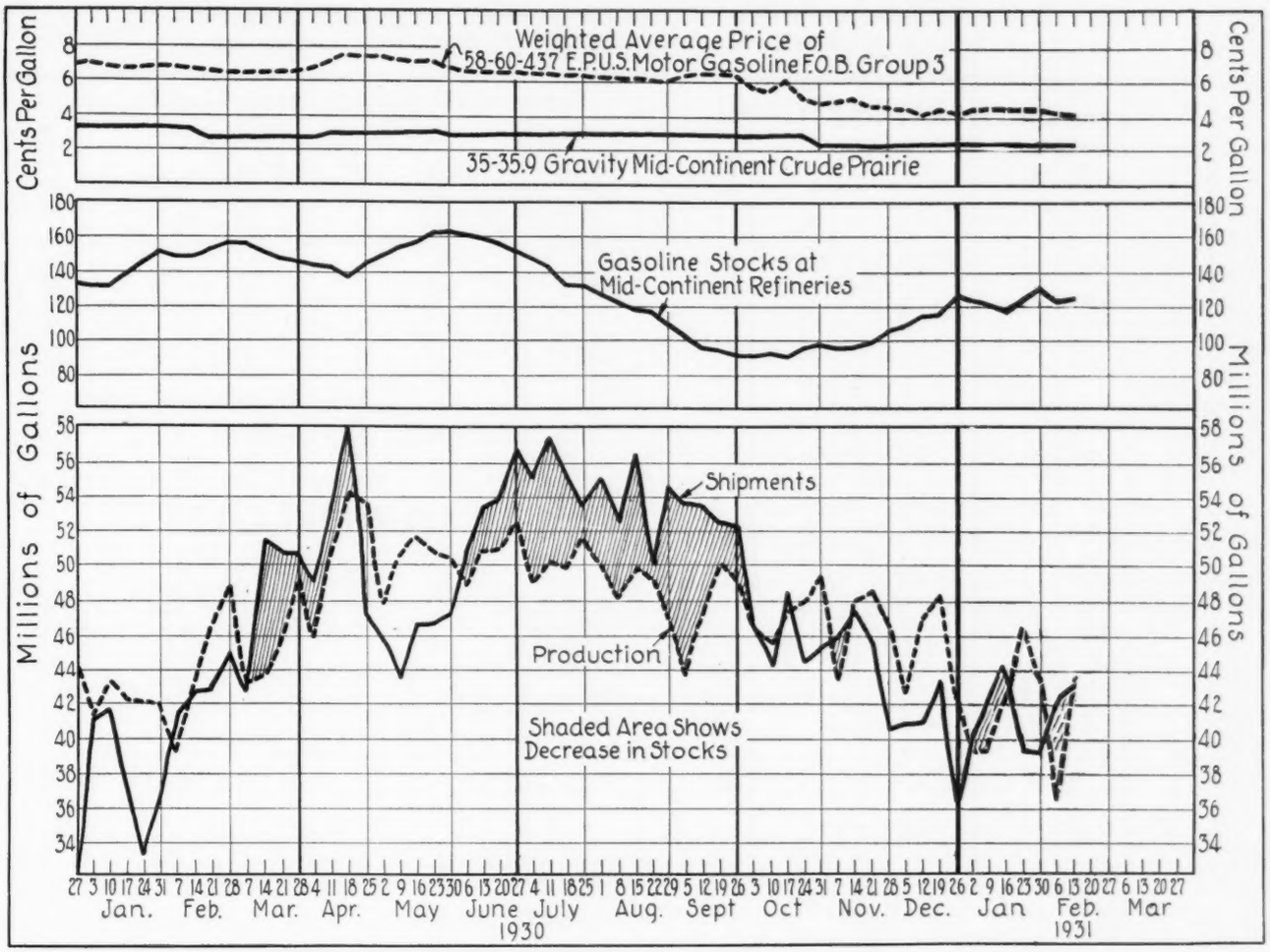
Burning Oil Distributors' Officers

CHICAGO, Feb. 14.—C. O. Frisbie, Commerce Petroleum Co., was reelected president of the Burning Oil Distributors Association, consisting of 21 oil distributors located in metropolitan Chicago, at their annual meeting at the Palmer House Feb. 11.

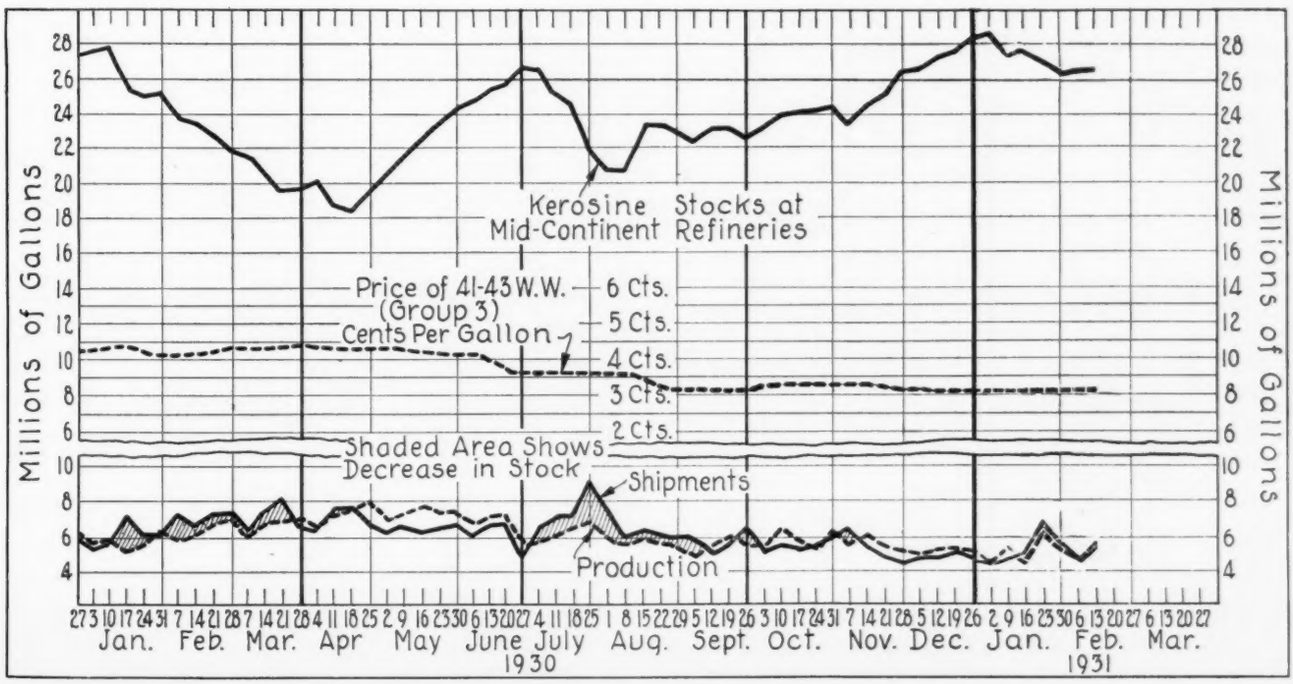
Charles Rosenthal, Apex Motor Fuel Co. was elected first vice-president; P. J. Healy, Arrow Petroleum Co., second vice-president; Charles Bennett, Cities Service Oil Co., third vice-president; R. F. Doepel, Braun Bros. Oil Co., fourth vice-president. A. D. King was reelected executive secretary. The following directors were elected: C. R. Jonswold, Lynch-Clarisey Co.; C. O. Frisbie, Commerce Petroleum Co.; I. Archambault, Pennsylvania Oil Co. of Evanston; and A. H. Pederson, North Shore Petroleum Co.

Barometer of Mid-Continent Refinery Market—Week Ending February 13

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News



Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on page 98



Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, except where $ is shown. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices Feb. 16	Prices Feb. 9	Prices Feb. 2
48-50 450 e.p. naphtha...	3.75 – 4.00	4.25	4.50
50-52 450 e.p. naphtha...	3.75 – 4.00	4.25	4.50
56-58 450 e.p. gasoline...	4.00	4.00 – 4.25	4.25 – 4.50
58-60 450 e.p. gasoline.	4.00	4.00 – 4.25	4.25 – 4.50
58-60 U.S. Motor 437 e.p.	4.00 – 4.50	4.125– 4.50	4.25 – 4.75
60-62 437 e.p. gasoline...	4.375– 4.625	4.375– 4.625	4.375– 4.75
60-62 400 e.p. gasoline...	4.50 – 4.75	4.50 – 4.75	4.75 – 5.25
64-66 390 e.p. gasoline...	4.75 – 5.00	5.00 – 5.25	5.25
64-66 375 e.p. gasoline...	5.00 – 5.25	5.25 – 5.50	5.25 – 5.50
68-70 350-360 e.p. gasoline	5.25 – 5.50	5.50 – 5.75	5.50 – 5.75
‡Domestic Aviation Gasoline.....	7.00 – 8.00	7.00 – 8.00	7.00 – 8.00

‡Prices based on U. S Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167°F., and not less than 122° F.; 50% rec. at 221°; 90% at 311°; 96% at 347°; end point, 374°F. Fighting grade in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

52-54 Naphtha.....	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
54-56 Naphtha.....	5.75 – 6.00	5.75 – 6.00	5.875– 6.00
58-60 U.S. Motor 437 e.p.	5.75 – 6.00	5.75 – 6.00	5.875– 6.25
60-62 400-410 e.p. gasoline	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
64-66 390 e.p. gasoline....	6.375– 6.75	6.375– 6.75	6.375– 6.75
68-70 350-360 e.p.....	7.25 – 7.75	7.25 – 7.75	7.25 – 8.00

OHIO (Quotations of S. O. Ohio. 4c state tax to be added.)

U. S. Motor Gasoline			
Ohio, delivery at any point.....	8.50	8.50	8.50

KANSAS (F. o. b. refinery Kansas destination)

58-60 U.S. Motor 437 e.p.	4.25 – 4.50	4.50 – 4.75	4.625– 4.75
60-62 437 e.p. gasoline....	4.50 – 4.75	4.50 – 5.00	4.75 – 5.00
60-62 400 e.p. gasoline....	4.75 – 5.00	4.75 – 5.25	5.00 – 5.25
64-66 375 e.p. gasoline....	5.25	5.50	5.50 – 5.75

NORTH TEXAS (F. o. b. North Texas refineries)

56-58 450 e.p. gasoline....	4.00	4.00	4.00
58-60 450 e.p. gasoline....	4.00	4.00	4.00
58-60 U.S. Motor 437 e.p.	4.00 – 4.25	4.00 – 4.375	4.25 – 4.50
60-62 400 e.p gasoline....	4.375– 4.625	4.50 – 4.75	4.625– 4.75
64-66 390 e.p. gasoline....	4.625– 4.75	5.00	5.00
64-66 375 e.p. gasoline....	4.75 – 5.00	5.25 – 5.375	5.25 – 5.375
68-70 350-360 e.p. gasoline	5.25	5.50 – 5.75	5.50 – 5.75

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment)

50-52 naphtha.....	3.75	4.00	4.00
58-60 437 e.p. gasoline....	3.75	4.00	4.00
58-60 U.S. Motor 437 e.p.	4.00 – 4.125	4.25	4.25

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

58-60 U.S. Motor 437 e.p	5.00	5.00	5.00

ARKANSAS (Ark., N. La. and Miss. destination)

58-60 U.S. Motor 437 e.p.	4.75	4.75	4.75

CALIFORNIA (3c tax to be added to California gasoline prices if used in state.)

54-58 U.S. Motor 437 e.p.	9.50 –10.75	10.00 –11.25	8.50 –10.50
54-58 U.S. Motor, for outside state shipment ...	8.00 – 9.25	8.50 – 9.50	8.00 – 9.25
58-61 375-400 e.p. gasoline	11.00 –12.00	11.00 –12.00	11.00 –12.00
42-45 Engine Distillate 445 480 e.p.	7.50 – 8.50	7.50 – 8.50	7.25 – 8.25

NATURAL GASOLINE

(Note: End point of all grades, not over 375F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA (F. o. b. Oklahoma refineries)

Grade AA, 80-87.9, 90% Recovery.....	3.50	**3.50 – 3.75	3.50
Grade A, 72-79.9, 90% Recovery.....	3.75	3.75	3.75
Grade BB, 84-92, 85% Recovery.....	**3.00	**3.00 – 3.25	3.25
Grade B, 76-83.9, 85% Recovery.....	3.25	3.25	3.25
Grade C, 80-92, 78% Recovery.....	3.00	3.00 – 3.25	3.25

NORTH TEXAS (F. o. b. Breckenridge)

	Prices Feb. 16	Prices Feb. 9	Prices Feb. 2
Grade AA, 80-87.9, 90% Recovery.....	**3.50	**3.50 – 3.75	3.50
Grade A, 72-79.9, 90% Recovery.....	3.75	3.75	3.75
Grade BB, 84-92, 85% Recovery.....	**3.00	**3.00 – 3.25	3.25
Grade B, 76-83.9, 85% Recovery.....	3.25	3.25	3.25
Grade C, 80-92, 78% Recovery.....	3.00	3.00 – 3.25	3.25

NORTH LOUISIANA (F. o. b. Monroe District)

Grade AA.....	†3.50 – 3.75	†3.50 – 3.75	†3.75
Grade BB.....	†3.00 – 3.25	†3.00 – 3.25	†3.25
Grade C.....	†3.00 – 3.25	†3.00 – 3.25	†3.25

CALIFORNIA (F. o. b. California refineries)

75-85, 375-390 e.p. for blending.....	5.25 – 6.00	5.25 – 6.25	5.25 – 6.25

BURNING OILS

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

45 w. w. kerosine.....	4.75 – 5.00	4.875– 5.00	4.875– 5.25
46 w.w. kerosine.....	5.00 – 5.25	5.125– 5.25	5.125– 5.375
47 w. w. kerosine.....	5.25 – 5.375	5.25 – 5.375	5.25 – 5.625
300 mineral seal.....	5.50 – 6.00	5.50 – 6.00	5.50 – 6.00

OKLAHOMA (F. o. b. Oklahoma refineries)

41-43 w. w. kerosine.....	3.125– 3.25	3.125– 3.25	3.125– 3.25
42-44 w. w. kerosine.....	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50

KANSAS (F. o. b. refinery Kansas destination)

41-43 w. w. kerosine.....	3.25 – 3.50	3.50 – 3.75	3.50 – 3.75
42-44 w. w. kerosine.....	3.75 – 4.00	4.00 – 4.25	4.00 – 4.25

NORTH TEXAS (F. o. b. North Texas refineries)

40-42 w. w. kerosine.....	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
41-43 w. w. kerosine.....	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

41-43 w. w. kerosine.....	4.00	4.00	4.00
42-44 w. w. kerosine.....	4.25	4.25	4.25

ARKANSAS (Ark., N. La. and Miss. destination)

41-43 w. w. kerosine.....	4.00	4.00	4.00

CALIFORNIA (F. o. b. California refineries)

38-40 w. w. kerosine.....	4.75 – 6.00	4.75 – 6.00	4.75 – 6.00

NEUTRAL OIL

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

Vis.		(Viscosity at 70° F.)	
200 No. 3 Assoc. Filt...	†18.50 –19.50	17.50 –18.50	17.00 –18.00
180 No. 3 Assoc. Filt....	†16.00 –17.50	15.00 –16.00	14.00 –15.00
150 No. 3 Assoc. Filt.....	†14.00 –14.50	11.50 –12.00	11.00 –11.50

Note: Low cold test neutral oils are quoted approximately 6c per gal. higher than prices shown above.

		(Non Viscous)	
34 Grav. 330-340 Flash...	5.50 – 6.00	5.50 – 6.00	5.50 – 6.00

****MID-CONTINENT** (F. o. b. Mid-Continent refineries)

Vis. Color		(Viscosity at 100° F.)	
100—No. 2.....	5.50	5.50	5.50
150—No. 3.....	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00
150—No. 4.....	6.50	6.50	6.50
180—No. 3.....	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
180—No. 4.....	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
180—No. 5.....	7.50	7.50	7.50
200—No. 3.....	9.75 –10.00	9.75 –10.00	9.75 –10.00
200—No. 4.....	9.25 – 9.50	9.25 – 9.50	9.25 – 9.50
200—No. 5.....	8.75 – 9.00	8.75 – 9.00	8.75 – 9.00
220—No. 3.....	11.50	11.50	11.50
220—No. 4.....	11.00	11.00	11.00
220—No. 5.....	10.00	10.00	10.00
240—No. 3.....	13.50	13.50	13.50
240—No. 4.....	12.50	12.50	12.50
240—No. 5.....	11.50	11.50	11.50
280—No. 3.....	15.00	15.00	15.00
280—No. 4.....	14.50	14.50	14.50
280—No. 5.....	13.50	13.50	13.50

Note: Quotations for 0 to 10 cold test neutral oils are 1 to 2 cents higher, depending on the grade.

****Represents Both Sales and Quotations.**

†Prices nominal ††Only one refiner quoting *Quotations only

Refinery Markets Wax, Lubricants, Heavy Oil

Prices given below are in cents per gallon, except where $ is shown. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

GULF COASTAL (F. o. b. Gulf Coastal refineries)

Vis. Color	Prices Feb. 16 (Viscosity at 100° F., pour test 0)	Prices Feb. 9	Prices Feb. 2
100—No. 2 Pale	5.50 – 6.25	5.50 – 6.25	5.50 – 6.25
200—No. 3 Pale	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
300—No. 3 Pale	9.00 – 9.50	9.00 – 9.75	9.00 – 9.75
500—No. 3½ Pale	10.00 –10.50	10.00 –11.00	10.00 –11.00
750—No. 4 Pale	11.50 –12.50	11.50 –12.50	11.50 –12.50
1200—No. 4 Pale	14.50 –15.00	14.50 –15.00	14.50 –15.00
2000—No. 4-5 Pale	15.50 –16.00	15.50 –16.00	15.50 –16.00
200—No. 5½ Red Oil	7.00 – 7.50	7.00 – 7.75	7.00 – 7.75
300—No. 5½ Red Oil	8.00 – 8.50	8.00 – 8.75	8.00 – 8.75
500—No. 6 Red Oil	9.00 –10.00	9.00 –10.00	9.00 –10.00
750—No. 6 Red Oil	11.25 –11.75	11.25 –11.75	11.25 –11.75
1200—No. 5-6 Red Oil	13.50 –14.00	13.50 –14.00	13.50 –14.00
2000—No. 6 Plus Red Oil	15.50 –16.00	15.50 –16.00	15.50 –16.00

‡CALIFORNIA (F. o. b. California refineries)

Vis. Color	(Viscosity at 100° F.)		
100—No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200—No. 3	11.50	11.50	11.50
300—No. 3	13.00	13.00	13.00
450—No. 3	15.50	15.50	15.50
550—No. 3	16.50	16.50	16.50
600—No. 3	17.00	17.00	17.00
200—No. 5	11.00	11.00	11.00
300—No. 5	12.00	12.00	12.00
400—No. 5	14.00	14.00	14.00
500—No. 5	15.00	15.00	15.00
600—No. 5	16.00	16.00	16.00
700—No. 7	18.00	18.00	18.00

‡Neutral oils not manufactured commercially in California.

CYLINDER STOCKS

MID-CONTINENT (F. o. b. Mid-Continent refineries)

(Bright stock prices represent quotations to domestic jobbers only).

190-200 Vis. D at 210° Brt. St.	25.00	25.00	25.00
150-160 Vis. D at 210° Brt. St., 0-10 cold test	18.00 –20.00	18.00 –20.00	18.00 –20.00
150-160 Vis. D at 210° Brt. St., 10-25 cold test	17.00 –18.00	17.00 –18.00	17.00 –18.00
150-160 Vis. D Brt. Stock, 25-40 cold test	16.00 –17.00	16.00 –17.00	16.00 –17.00
150-160 Vis. E 210° Brt. St.	16.00	16.00	16.00
600 St. Ref. Olive Green	7.50 – 8.00	7.50 – 8.00	7.50 – 8.00
600 St. Ref. Dark Green	6.00 – 8.00	6.00 – 8.00	6.00 – 8.00
Black Oil	5.00	5.00	5.00

PENNSYLVANIA (F. o. b. Western Penna. refineries) (A.S.T.M. Tests)

600 Steam Refined, filterable	8.25 – 9.00	8.25 – 9.00	8.50 – 9.00
650 Steam Refined	12.25 –13.50	12.50 –13.50	12.50 –13.50
600 Flash	13.50 –15.00	13.50 –14.00	13.50 –14.50
630 Flash	19.50 –20.00	19.50 –20.00	19.50 –21.00
600 Warren E	12.50 –13.50	12.50 –13.50	12.50 –13.50
600 Oil City E	12.00 –13.00	12.00 –13.00	12.00 –13.00
600 D Filtered	†14.50 –15.00	†14.50 –15.00	†15.00 –16.00
Cold Test Stock, 140-150 vis. at 210°, 540-550 flash, No. 8 color, below 25 pour test	18.00 –19.00	18.00 –19.00	18.00 –19.00
No. 8 color, 25-35 pour test	17.00 –18.00	17.00 –18.00	17.00 –18.00
No. 8 color, above 35 pour test	17.00 –17.50	17.00 –17.50	17.00 –17.50

WAX

PENNSYLVANIA (Per pound, F. o. b. New York)

122-124 white crude scale a.m.p.	2.25 – 2.375	2.25 – 2.375	2.30 – 2.375
124-126 white crude scale, a.m.p.	2.25 – 2.375	2.25 – 2.375	2.35 – 2.375

****OKLAHOMA** (Per pound in barrels; in a few instances, per pound in burlap bags; F. o. b. Oklahoma refineries.)

124-126 White Crude Scale, a.m.p.	2.00	2.00	2.00

DISTILLATE, GAS AND FUEL OIL

PENNSYLVANIA (For outside Pittsburgh district)

36-40 fuel oil	3.25 – 3.75	3.25 – 3.75	3.125– 3.75
30-34 fuel oil	3.25 – 3.75	3.25 – 3.75	3.125– 3.75
28-32 fuel oil	3.25 – 3.75	3.25 – 3.75	3.125– 3.75

Note: Zero cold test fuel oils are quoted 0.25c to 0.50c higher than prices shown above.

†Prices nominal ††Only one refiner quoting *Quotations only

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices Feb. 16	Prices Feb. 9	Prices Feb. 2
38-40 straw distillate	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
36-38 straw distillate	2.625– 2.75	2.625– 2.75	2.75
32-36 straw gas oil	2.25 – 2.375	2.25 – 2.375	2.25 – 2.50
32-36 straw gas oil zero	2.50 – 2.625	2.50 – 2.625	2.50 – 2.75
32-36 dark gas oil	2.00 – 2.125	2.00 – 2.125	2.00 – 2.25
32-36 dark gas oil zero	2.375– 2.625	2.25 – 2.50	2.375– 2.625
28-30 zero fuel oil(per bbl.)	$0.85 – 0.875	$0.85 – 0.95	$0.85 – 0.95
28-30 fuel oil (per bbl.)	$0.80 – 0.825	$0.80 – 0.825	$0.80 – 0.825
26-28 fuel oil (per bbl.)	$0.70 – 0.75	$0.70 – 0.75	$0.70 – 0.75
24-26 fuel oil (per bbl.)	$0.60 – 0.70	$0.60 – 0.70	$0.60 – 0.70
22-26 fuel oil (per bbl.)	$0.525– 0.575	$0.525– 0.575	$0.525– 0.575
18-22 fuel oil (per bbl.)	$0.45 – 0.50	$0.45 – 0.50	$0.45 – 0.50
16-20 fuel oil (per bbl.)	$0.425– 0.45	$0.425– 0.45	$0.425– 0.45
14-16 fuel oil (per bbl.)	$0.40 – 0.425	$0.40 – 0.425	$0.40 – 0.425

KANSAS (F. o. b. refinery Kansas destination)

38-40 straw distillate	3.00 – 3.25	3.00 – 3.25	3.00 – 3.25
36-38 straw distillate	2.875– 3.00	2.875– 3.00	2.875– 3.00
32-36 straw gas oil	2.75 – 2.875	2.75 – 2.875	2.75 – 2.875
18-22 fuel oil (per bbl.)	$0.70 – 0.75	$0.70 – 0.75	$0.70 – 0.75
10-14 fuel oil (per bbl.)	$0.55 – 0.65	$0.55 – 0.65	$0.55 – 0.65

NORTH TEXAS (F. o. b. North Texas refineries)

38-40 straw distillate	2.75	2.75 – 3.00	2.75 – 3.00
38-40 p.w.treated distillate	3.00	3.00 – 3.25	3.00 – 3.25
32-36 gas oil, cracked	2.25 – 2.50	2.25 – 2.50	2.25 – 2.50
32-36 St. reduced gas oil	2.00 – 2.25	2.00 – 2.25	2.00 – 2.25
24-26 fuel oil (per bbl.)	$0.50	$0.50	$0.50
20-24 fuel oil (per bbl.)	$0.45	$0.45	$0.45
18-22 fuel oil (per bbl.)	$0.40	$0.40	$0.40

****WEST TEXAS** (F. o. b. West Texas refinery, or unrestricted shipment)

34-38 gas oil	2.00 – 2.25	2.125– 2.375	2.125– 2.375
30-32 gas oil	1.875– 2.00	1.875– 2.125	1.875– 2.125
28-30 zero gas oil	2.25 – 2.50	2.25 – 2.50	2.25 – 2.50
18-22 fuel oil (per bbl.)	$0.40 –$0.50	$0.40 –$0.50	$0.40 –$0.50

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

32-36 gas oil, dark	*3.25	*3.25	*3.25
32-36 gas oil, straw	*3.25	*3.25	*3.25
14-16 fuel oil (per bbl.)	$0.75 –$0.85	$0.75 –$0.85	$0.75 –$0.85

ARKANSAS (Ark., N. La. and Miss. destination)

32-36 gas oil, straw	3.00	3.00	3.00
32-36 dark gas oil	3.00	3.00	3.00
28-30 gas oil	2.75	2.75	2.75
20-24 fuel oil (per bbl.)	$0.90 –$0.95	$0.90 –$0.95	$0.90 –$0.95
9-12 fuel oil (per bbl.)	$0.70 –$0.75	$0.70 –$0.75	$0.70 –$0.75
Black oil	3.25	3.25	3.25

CALIFORNIA (F. o. b. San Joaquin Valley. Nominal pipe line charge to San Francisco 24c per bbl. more and to San Pedro 20c per bbl. more.)

14-18 fuel oil (per bbl.)	$0.40 –$0.65	$0.40 –$0.65	$0.35 –$0.65
14-18 Bunker oil (per bbl.)	$0.60 –$0.85	$0.60 –$0.85	$0.60 –$0.85
30-34 gas oil (per bbl.)	$0.85 –$1.15	$0.85 –$1.15	$0.85 –$1.15
27 Plus Diesel oil (per bbl.)	$0.80 –$1.05	$0.80 –$1.05	$0.80 –$1.05

PETROLATUMS

PENNSYLVANIA (Per pound, in barrels, carload lots. f. o. b. refinery In tank cars ⅝c to ¾c per pound less.) Two refiners quoting.

Snow White	7.00 – 8.00	7.00 – 8.00	7.00 – 8.00
Lily White	6.125– 7.00	6.125– 7.00	6.125– 7.00
Cream White	5.125– 6.00	5.125– 6.00	5.125– 6.00
Light Amber	2.875– 3.00	2.875– 3.00	2.875– 3.00
Amber	2.625– 2.75	2.625– 2.75	2.625– 2.75
Red	2.00 – 2.50	2.00 – 2.50	2.00 – 2.50

PETROLEUM COKE

****OKLAHOMA** (F. o. b. Oklahoma refineries)

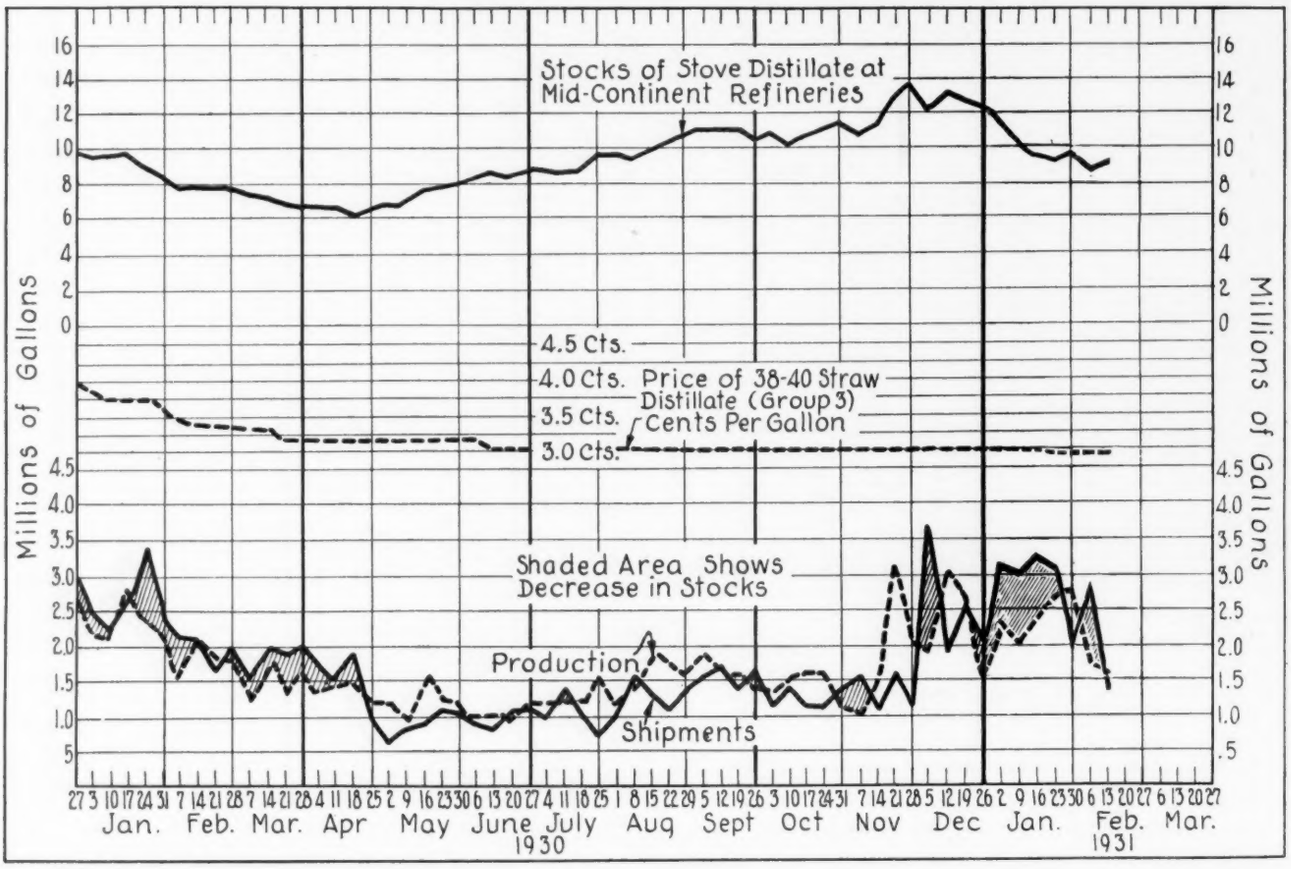
(Per ton in car lots)

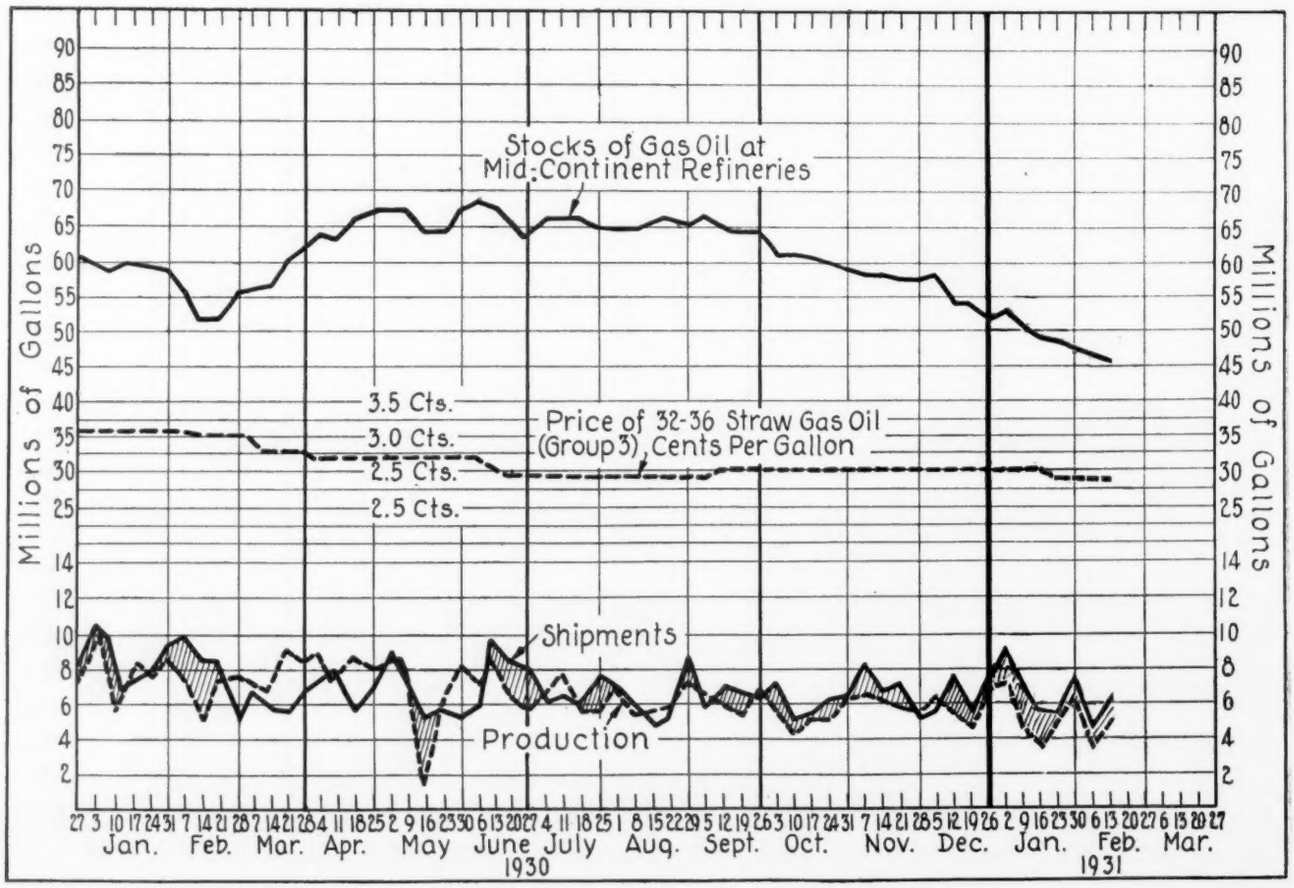
Lump	$4.50 –$5.00	$4.50 –$5.00	$4.50 –$5.00
Still run	$3.00	$3.00	$3.00
Breeze	$2.00	$2.00	$2.00

****Represents Both Sales and Quotations.**

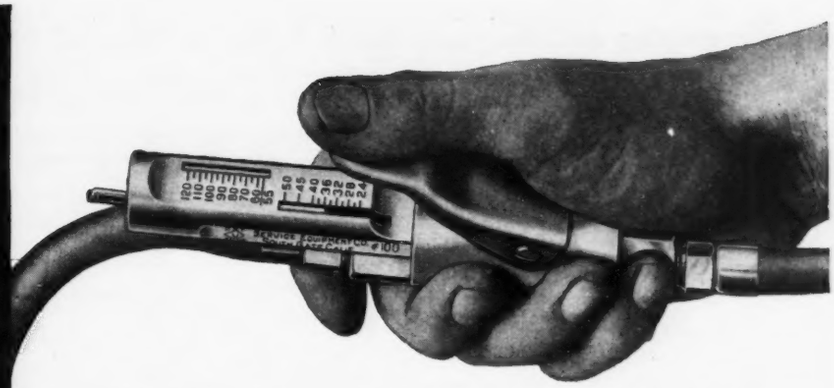
Barometer of Mid-Continent Refinery Market—Week Ending February 13

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News


Stocks of Stove Distillate at Mid-Continent Refineries
4.5 Cts.
4.0 Cts.
3.5 Cts.
3.0 Cts.
Price of 38-40 Straw Distillate (Group 3) Cents Per Gallon
Shaded Area Shows Decrease in Stocks
Production
Shipments
Millions of Gallons
Jan. Feb. Mar. Apr May June July Aug Sept Oct Nov Dec Jan. Feb. Mar.
1930
1931


Stocks of Gas Oil at Mid-Continent Refineries
3.5 Cts.
3.0 Cts.
2.5 Cts.
2.5 Cts.
Price of 32-36 Straw Gas Oil (Group 3), Cents Per Gallon
Shipments
Production
Millions of Gallons
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1930
1931

-tire miles positively depend on accurate pressure GAUGING!



THE LAST CENT'S WORTH OF INBUILT VALUE!... that's what everybody wants and is trying to get from his tires nowadays! Need for economizing is one reason why. Education in tire care is another.

It is common knowledge that, to secure the utmost in mileage, correct pressures must be carefully *maintained.* But that can't be done unless pressures are gauged BEFORE inflation; for how else can it be determined how OFTEN to inflate? Tire authorities, therefore, *cannot* approve any method of air-servicing tires that does no more than inflate *to predetermined pressure.*

Diamond-U Tire Inflator checks tire pressures. Also, it combines dependable, *master*-gauge ACCURACY with

Unlimited, Time-Saving *S-P-E-E-D* ... Speed You NEED!

Its position at tbe END of the air line, and its exclusive, patented construction make the Diamond-U the *fastest* means of checking and inflating tires. In the time it saves the operator, a Diamond-U commonly pays for itself within two or three *weeks.* Every *customer,* also, appreciates this time-saving speed.

From beginning to end, the entire process of gauging and inflating with a Diamond-U is so extremely simple and fast that the two operations become *one.*

Instantly the swivelled chuck is connected with the tire valve you have a correct-to-the-pound tire pressure reading. A slight squeeze on the lever, and full compressor head of air goes *direct to the tire.* Release, and you have another reading...a non-fluctuating, *one-point* indication that is clearly legible at *arm's length.* And so on, as fast as you can thumb the lever.

Weighing just 12½ ounces, the compact Diamond-U Tire Inflator unit is handled with supreme ease. Accuracy is GUARANTEED for a YEAR; for the Diamond-U is shock-proof, dirt-proof, weather-proof.

Leading tire manufacturers, oil companies, and fleet owners everywhere are standardizing on this equipment, which is *unequalled at ten times its cost.* YOU, too, need a Diamond-U at the end of every air line. The investment is trifling; the returns are BIG and immediate. Why not order today? In the United States the price for the unit complete with swivelled chuck, extra chuck nut and washers is **$12.50**

NO WASTED MOTIONS With the Diamond-U at the END of the LINE!

It's In Your Hand, At the Tire, Where YOU Have to Be!

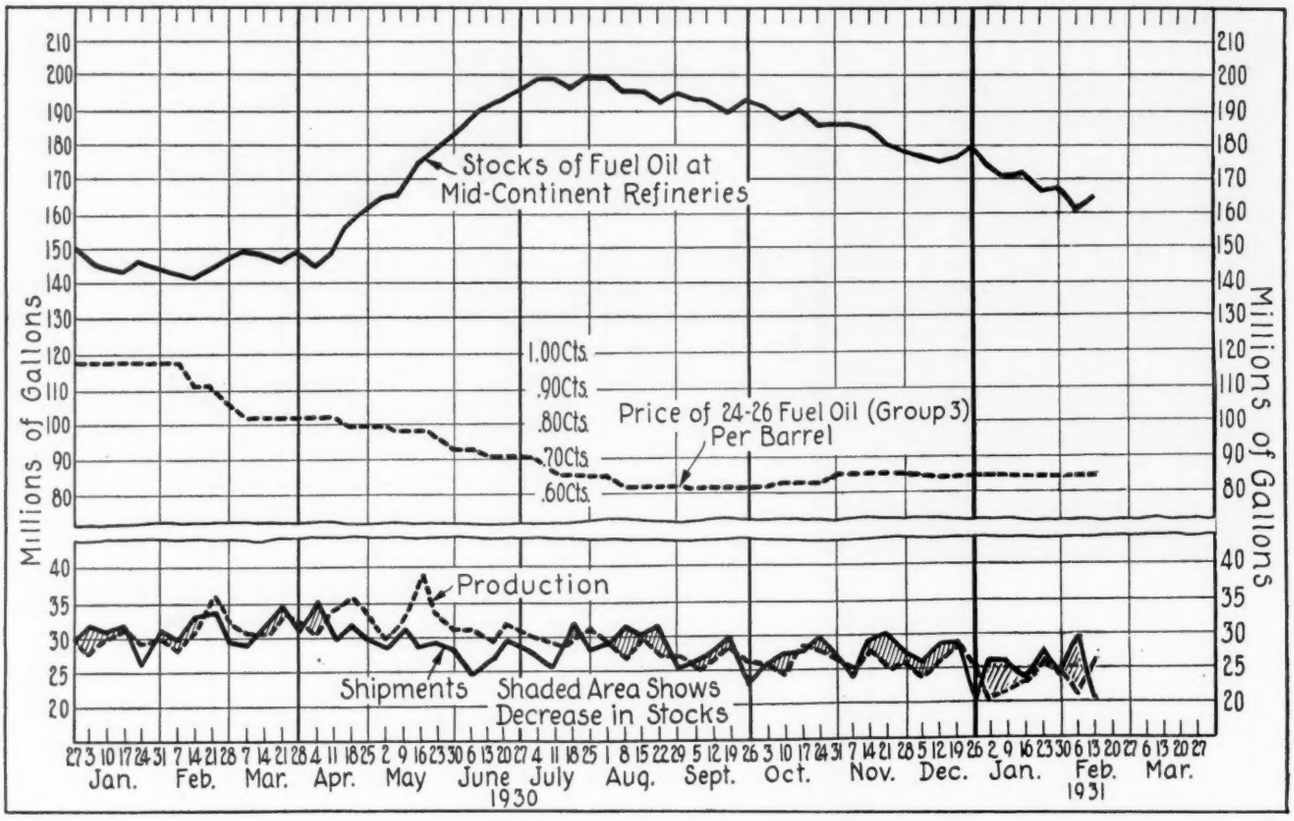
SERVICE EQUIPMENT CO., *Mfrs.*— SOUTH GATE, CAL.

DISTRIBUTING OFFICES: New York . . Springfield, Mass. . . Philadelphia . . Chicago . . Kansas City . . St. Paul . . Atlanta . . Los Angeles 27

DIAMOND-U TIRE INFLATOR

Barometer of Mid-Continent Refinery Market—Week Ending February 18

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News



California Refinery Market

Fuel Oil Trading More Active

LOS ANGELES, Feb. 12

MARKETS on the Pacific Coast were practically unchanged during the past week. Gasoline sales continued to be depressed by unfavorable weather conditions that were responsible for a slightly better heavy oil market.

Bulk markets were featured by inquiries that were for the most part exploratory in nature but also included some live business. Fuel oil and diesel oil inquiries vied with natural gasoline for attention from local exporters.

A major refiner shipped approximately 68,000 barrels of fuel oil to Buenos Aires the past week. Although the sale price could not be obtained, it is understood a ship was chartered at $0.60 per barrel, which is about 15 cents under prevailing rates and which, therefore, gives the California company considerable leeway in competing with Gulf Coast refiners.

Bids on approximately 16,000 barrels of bunker fuel oil for the United States Shipping Board, f.o.b. San Pedro harbor indicated a wide range of prices. Quotations by major refiners ranged between $0.75 and $0.85 per barrel. Four independent companies tied at $0.65 per barrel for dock and $0.69 for barge delivery. This is approximately 5 cents above previous quotations on similar business.

A buyer early in the week inquired for approximately 280,000 barrels of fuel oil for supplying the fuel needs of Antarctic whaling vessels. Although the buyer was seeking to close the deal at $0.55, traders believed it would not be possible to shade $0.58 and possibly might range upward of $0.60.

Scattered inquiries were received for diesel and gas oil and indications were that some export natural gasoline could be moved with improved conditions in the eastern markets.

In the domestic markets, quotations were generally unchanged. Gasoline for distribution within the state ranged at 9.50 to 10.75, with a few spot tank cars moving at 9.25 cents. These prices exclusive of tax.

For shipment into adjoining states, quotations were reported at 8 to 9.25 cents although a large independent refiner was said to be quoting 7.50 cents in competitive territory.

Quotations on fuel oil in tank car lots had a spread of $0.40 per barrel up for a commodity with less than 1.5 per cent sulfur. Fuel from Venice crude sold as low as $0.25 per barrel.

ALBANY, N. Y.—Bills have been introduced in both houses of the New York legislature to permit cities to levy a 1 cent a gallon tax on gasoline in addition to the state 2 cent tax.

CLEVELAND—Dr. Sidney Born, of the Marathon Oil Co., has been in southern Texas looking over the company's refinery at Del Rio.

Pennsylvania Markets

Neutrals Continue Tight

CLEVELAND, Feb. 14.—Interest in neutral oils continued to dominate the Pennsylvania market throughout the second week of February. There was little activity in other parts of the refined oil list. What price changes there were gave evidence of improvement, with the possible exception of gasoline.

The neutral oil situation showed no signs of easing. Demand continued greatly in excess of supply. Any number of traders reported receiving inquiries for from 5 to 20 cars of material. Prices, due largely to the scarcity of supply, made further wide gains. The 150 No. 3 color oil advanced from 11.50 cents early in the week to a minimum of 14 cents as the week ended. Even the latter price was more or less nominal. The establishment of prices was determined largely by buyers' bids. A broker reported receiving an open bid of 13 cents a gallon for the 150 No. 3 color grade.

The demand for bright stock improved a bit but there was only a minor favorable reaction in prices. Low pour test bright stock still was freely available at 18 cents a gallon. Buyers previously had been able to shade this figure on firm offer. Their efforts met with little success the past week.

Kerosine and fuel oil remained fairly steady. Kerosine was in sufficiently good demand to keep the price for 45 w.w. from slipping below 4.875 cents to the car unloader. Fuel oil continued scarce in the Oil City district and quotations of 3.75 to 3.875 cents from sellers in that district were largely nominal. Fuel oil was freely offered in the Warren and Bradford districts at 3.25 to 3.50 cents.

Gasoline was rather sluggish and excessive stocks caused considerable distress material to be offered. Fairly large quantities of U. S. Motor were reported offered at 5.50 cents a gallon although sales at this figure could not be confirmed. The majority of quotations ranged from 5.75 to 6 cents.

Cylinder stocks were quiet; prices showed little change. Wax was easier with both the 122-124 and 124-126 A.m.p. grades of white crude scale being offered at 2.25 cents a pound, New York.

Of the 556,000 barrels of gas oil imported by France during the first half of 1930, only 64,000 barrels came from the United States. Rumania shipped 177,000 barrels; Venezuela 142,000 and Russia 50,100 barrels.

The United States shipped 24,000 metric tons of road oil to France the first half of 1930 out of its total imports of 53,500 metric tons.

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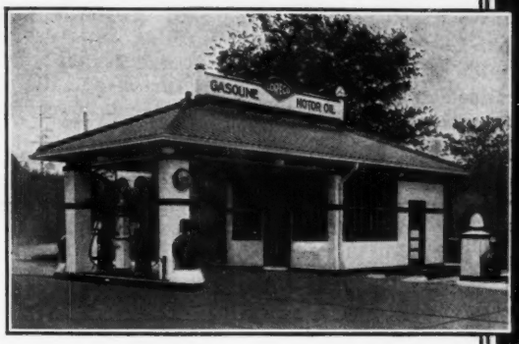

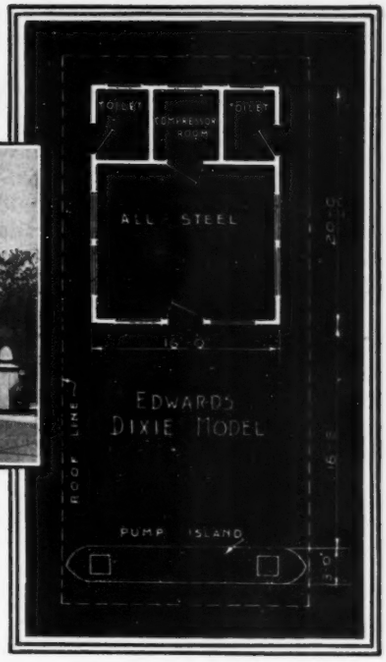

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Eastern Domestic Markets

Eleven Refiners Advance Gasoline Price

Staff Special
NEW YORK, Feb. 14

ELEVEN refiners operating along the eastern seaboard advanced their prices for U. S. Motor gasoline during the week ended Feb. 14. The majority of the companies raised their prices 0.50-cent. The Shell company advanced its price 1 cent. The Atlantic Refining Co. and the Continental Oil Co. announced that their respective companies would post 7.50 cents effective Feb. 16.

The uptrend of prices for U. S. Motor gasoline at New York harbor has progressed throughout the week with a determined air. However, the advance of the market from the 7-cent level to 7.50 and 8 cents has not been tested by buying in any sizeable volume. Demand from the jobbing trade has been exceedingly light the past week. It was reported that jobbers storage was still filled up with gasoline to take care of their current requirements.

A comparatively good movement of regular U. S. Motor in tank cars to points in New Jersey, Pennsylvania and upper New York state was reported throughout the week on the basis of 7 cents, f.o.b. New York harbor. In many instances the gasoline sold at the higher price levels was better than regular U. S. Motor. The material had specifications of approximately 400 end point and required from .7 to 1 c.c. of lead to bring it up to Ethyl standard. The regular U. S. Motor offered for 7 cents a gallon was about 410 end point and requires approximately 1.5 c.c. of lead to bring up to Ethyl standard.

The quality of gasoline marketed on the east coast recently has been sufficiently high to literally displace the demand for California gasoline in a large degree. Refined from Texas and Venezuelan crudes rich in non-detonating hydrocarbons and aided by efficient refining equipment the gasoline offered by the majority of eastern sellers was reported to be better than the California product which has normally carried a premium price. Sales of the latter product at New York harbor have been few and far between.

A domestic buyer inquired late in the week for a cargo of California 400 end point gasoline for prompt delivery in New York and received a price of 5.75 cents f.o.b. California. On this basis, a cargo of west coast gasoline could be laid down in New York harbor for 6.625 cents per gallon.

In the Philadelphia and Baltimore markets, California U. S. Motor has experienced a diminishing popularity. Some of this material was available at 7 cents but in most instances sellers were pushing their better product to the front.

Gasoline markets in New England featured a one sided advance in prices. The majority of the companies operating in that district moved their posted figures up 0.50 cent while the Standard Oil Company of New York and Cities Service Company remained at their present levels. These companies were expected to post higher prices soon.

As in the other markets, demand was light. U. S. Motor was quoted at 7.40 cents delivered within the Boston switching limits; in Providence, 8.75 cents delivered; and in Portland 8 cents delivered.

Burning oils were in brisk demand in both New York and New England. In both markets the 28-34 gravity oil was quoted at 4.50 cents, and 5.50 cents for the 36-40 gravity oil. Lower prices still persisted for an off-grade heating oil which has caused occasional distress to the sellers of the better grades. Kerosine was in fair demand at New York harbor at 6.25 cents per gallon.

Posted prices for Grade C bunker oil were unchanged at $1.05 per barrel. At New York and Boston. Diesel oil was quoted at $1.85 at New York harbor.

Gulf Lubes More Stable

HOUSTON, Feb. 14.—Gulf Coastal lubricant markets had reached a more stabilized stage, at unchanged prices, the middle of February. Slight adjustments were reported in top ranges of quotations, which are now uniformly a half cent a gallon between highs and lows. Threatened reductions in low ranges failed to appear.

Gulf Coast Markets

Roumanian Gasoline Underselling Gulf Refiners

Staff Special
NEW YORK, Feb. 14.

GULF coast bulk markets closed another week without any inquiry for gasoline or kerosine. Foreign demand has gradually fallen off the last few weeks as the Roumanian supply has been equal to current requirements.

Roumanian sellers have been offering material 0.25 to 0.50-cent under the American market and with lower transportation rates available in Europe, American sellers have been out of the running.

American sellers indicated that 5.25 cents would be accepted for U. S. Motor but in the absence of firm business, this price becomes a matter of opinion. The other grade which is ordinarily popular abroad, 64-66, 375 end point was available for 6 cents. The prices for the various grades of gas oil and kerosine remained generally unchanged.

A few small orders of 500 cases of U. S. Motor were reported at $1.60 per case for prompt shipment to points in the West Indies and South America. Aside from this slight flurry the market for cased goods remained generally unchanged.

Grade C Bunker oil in cargo lots continued available at $0.65 per barrel.

Venezuela Crude

The market for Venezuela crude was rather active last week. Three cargoes were sold to European buyers at $0.76 per barrel f.o.b. deepwater in the Lake Maracaibo region. The loading dates were reported to be some time late in February and early March.

Panuco Crude

The market for Panuco crude was quiet last week. Sellers conversant with this market were of the opinion that Panuco crude was available for $0.50 per barrel f.o.b. Tampico.

Wax Markets

United Kingdom Buyers Inquire

NEW YORK, Feb. 14.—Several inquiries for assorted grades of wax were circulated around the wax market last week by United Kingdom buyers. The business called for about 50 tons and in most instances for prompt shipment. An inquiry for 50 tons of 135-137 A.m.p. fully refined was disclosed that there was a decided shortage of this grade at Pennsylvania refineries.

Prices for all grades in both New York and New Orleans markets remained generally unchanged.

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THE following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister Building, Washington, D. C. trademark specialists.

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"DEHYDRO." Ser. No. 303,794. Howard L. Berkey, doing business as The Dehydrating Co., Tulsa, Okla. For petroleum-treating compound, which is a chemical reagent used for the breaking of crude petroleum emulsions.

"ROYAL PURPLE." Ser. No. 305,422. Tennessee Products Corp., Nashville, Tenn. For antifreeze mixtures.

"OPCO" No. 298,457. Opco Co., Inc., Buffalo, N. Y. For lubricating oils and greases, gasoline, fuel oil, thinning oil, etc.

"E-Z-ZINK" No. 307,360. McDonald & Machado, Venice, Calif. For gasoline.

"APLUS" No. 307,510. Oliver Saive, New York City. For lubricating oils.

"GOLDEN WEST WAX-OUT, THE OIL OF THE GOLDEN WEST" No. 307,546. E. W. Fawcett, Denver, Colo. For motor lubricating oils.

"FABRIKLENE" No. 291,463. Merck & Co., Rahway, N. J. For dry cleaning fluid.

"NU-WING" with design of two wings. No. 303,217. M. H. Sikes, Atlanta, Ga. For metallic oil and gasoline cans.

"BOURIEO" No. 307,474. Ignace Bourie, Reno, Nevada. For liquid cleaner for removing stains from linens, woodwork, etc.

"LITTLE FLOWER" No. 307,769. Emery Industries, Inc., St. Bernard, Ohio. For candles.

"ACE CLEANER" No. 306,711. Timothy D. Perkins, San Diego, Calif. For cleansing liquid.

"CRESCENT" No. 282,645. The Great Western Oil Co., Cleveland, Ohio. For gasoline.

"PENCOSTATE." Ser. No. 305,991. James Sikes Warner, Topeka, Kansas. For lubricating oils.

"PENFORD." Ser. No. 308,293. David-Howland Oil Corporation, Rochester, N. Y. For lubricating oils and lubricating greases.

"WHITE FLASH," and representation of a streak of lightening. Ser. No. 307,963. The Atlantic Refining Company, Philadelphia, Pa. For gasoline.

"ISISOL." Ser. No. 308,071. I-Sis Laboratories, Inc., New York City. For lubricating oil.

"TRIPLEX." Ser. No. 306,540. John L. Ray, doing business as Lubrication Engineering & Sales Co., Long Island City, N. Y. For motor-lubricating oils.

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Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of sales and quotations. Prices shown below do not include inspection tax levied in some states.)

U. S. MOTOR GASOLINE	Prices Feb. 16	Prices Feb. 9	Prices Feb. 2
New York harbor	7.00 – 7.50	7.00	7.00
Portland district	*7.75 – 8.00	*7.75 – 8.00	*7.75 – 8.00
Boston district	*7.40 – 7.50	*7.40 – 7.50	*7.40 – 7.50
Providence district	*8.00 – 8.25	*8.00 – 8.25	*8.00 – 8.25
Philadelphia district	7.00 – 7.50	7.00	7.00
Baltimore district	7.00 – 7.50	7.00	7.00
Norfolk district	7.00 – 7.50	7.00	7.00
Charleston district	7.00 – 7.50	7.00	7.00
Savannah district	7.00 – 7.50	7.00	7.00
Jacksonville district	7.00 – 7.50	7.00	7.00
CALIFORNIA, U. S. MOTOR GASOLINE			
New York harbor	†7.00	†7.00	†7.00
Philadelphia district	†7.00	7.00	7.00
Baltimore district	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25
‡DOMESTIC AVIATION GASOLINE			
New York harbor	10.00 –13.00	10.00 –13.00	10.00 –13.00
Philadelphia	10.00 –12.00	10.00 –12.00	10.00 –12.00
Baltimore	11.00 –13.00	11.00 –13.00	11.00 –13.00
Boston	11.50 –13.00	11.50 –13.00	11.50 –13.00

‡Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167°F. and not less than 122°F.; 50% recovery at 221°; 90% at 311°; 96% at 347° end point 374°F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

WATER WHITE KEROSINE			
New York harbor	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
Philadelphia district	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50
Baltimore district	6.50	6.50	6.50
GAS OIL: 28-34 Gravity			
New York harbor	4.50	4.50	4.50
Boston district	4.50	4.50	4.50
FURNACE OIL: 36-40 Gravity			
New York harbor	5.50	5.50	5.50
Boston district	5.50	5.50	5.50
GRADE C BUNKER OIL (Lighterage 5c per bbl. additional)			
New York harbor	$1.05	$1.05	$1.05
Boston district	$1.05	$1.05	$1.05
DIESEL OIL			
New York harbor	$1.85	$1.85	$1.85

†Nominal. *Delivered prices.

New York Export Market

(Lubricating oils are per gal. in bbls. f.a.s. New York)

	Feb. 16	Feb. 9	Feb. 2
CYLINDER OILS (Pennsylvania Products)			
Bright stock, No. 8 color	24.00 –26.00	24.00 –26.00	24.00 –26.00
Bright stock, No. 6½ color diluted	23.00 –25.00	23.00 –25.00	23.00 –25.00
600 D filtered	22.50 –25.00	22.50 –25.00	22.50 –25.00
600 Warren E. filtered	19.00 –22.00	19.00 –22.00	19.00 –22.00
600 stm. refd. unfiltered	15.00 –17.00	15.00 –17.00	15.00 –17.00
650 stm. refd. unfiltered	18.00 –20.00	18.00 –20.00	18.00 –20.00
600 flash, steam refined	19.50 –23.00	19.50 –23.00	19.50 –23.00
630 flash, steam refined	25.00 –28.00	25.00 –28.00	25.00 –28.00
RED PARAFFIN OILS (Vis. 100°)			
300 vis. No. 6½ color	17.00 –20.00	17.00 –20.00	17.00 –20.00
250 vis. No. 6 color	16.50 –17.50	16.50 –17.50	16.50 –17.50
200 vis. No. 6 color	14.75 –17.00	14.75 –17.00	14.75 –17.00
PALE PARAFFIN OILS (Vis. 100°)			
230 vis. No. 3¾ color	21.50	21.50	21.50
180 vis. No. 3¼ color	18.00 –20.00	18.00 –20.00	17.00 –18.00
100 vis. No. 2¼ color	12.50 –15.00	12.50 –15.00	12.50 –15.00
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	28.00 –30.00	28.00 –30.00	28.00 –30.00
500 vis. No. 6½ color	26.50 –29.50	26.50 –29.50	26.50 –29.50
400 vis. No. 7¼ color	25.00 –28.00	25.00 –28.00	25.00 –28.00
300 vis. No. 6 color	22.00 –26.00	22.00 –26.00	22.00 –26.00
200 vis. No. 6 color	21.00 –23.50	21.00 –23.50	21.00 –23.50

Wax Market

(Melting points are A.M.P. method. Prices in cents per pound, f.a.s. carload lots.)

NEW YORK	Feb. 16	Feb. 9	Feb. 2
124-126 Yellow crude scale	2.25	2.25	2.30 – 2.50
122-124 White crude scale	2.25 – 2.375	2.25 – 2.375	2.35 – 2.50
124-126 White crude scale	2.25 – 2.375	2.25 – 2.375	2.35 – 2.50
123-125 Fully refined	3.25	3.25	3.25
125-127 Fully refined	3.375– 3.50	3.375– 3.50	3.375– 3.50
128-130 Fully refined	3.625– 3.75	3.625– 3.75	3.625– 3.75
130-132 Fully refined	3.625– 3.875	3.625– 3.875	3.625– 3.875
133-135 Fully refined	4.375– 4.50	4.375– 4.50	4.375– 4.50
135-137 Fully refined	4.625– 4.75	4.625– 4.75	4.625– 4.75
NEW ORLEANS			
124-126 Yellow crude scale	2.25	2.25	2.25 – 2.50
122-124 White crude scale	2.25 – 2.375	2.25 – 2.375	2.35 – 2.50
124-126 White crude scale	2.25 – 2.375	2.25 – 2.375	2.35 – 2.50
123-125 Fully refined	3.25	3.25	3.25
125-127 Fully refined	3.375– 3.50	3.375– 3.50	3.375– 3.50
128-130 Fully refined	3.50 – 3.75	3.50 – 3.75	3.50 – 3.75
130-132 Fully refined	3.50 – 3.625	3.50 – 3.625	3.75 – 3.875
133-135 Fully refined	4.375	4.375	4.375

Gulf Coast Bulk Market

(Prices are f. o. b. Gulf oil terminals representing sellers' opinions covering bulk shipments of 20,000 barrels or more, for export and / or coastwise shipment unless otherwise noted.)

GASOLINE	Prices Feb. 16	Prices Feb. 9	Prices Feb. 2
U. S. Motor	5.125– 5.25	5.125– 5.25	5.125– 5.25
60-62, 400 e.p.	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
61-63, 390 e.p.	5.75 – 5.875	5.75 – 5.875	5.75 – 5.875
64-66, 375 e.p.	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
U. S. Motor, cases (cargoes)	$1.60	$1.60	$1.60
64-66, cases (cargoes)	$1.70 –$1.72	$1.70 –$1.72	$1.70 –$1.72
KEROSINE			
44 water white	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
41-43 prime white	4.25 – 4.50	4.25 – 4.50	4.25 – 4.50
Water white, cases (cargoes)	$1.40	$1.40	$1.40
Prime white, cases (cargoes)	$1.30	$1.30	$1.30
GAS & BUNKER OILS			
*26-30 translucent gas oil	3.00 – 3.125	3.00 – 3.125	3.00 – 3.125
*30 plus translucent gas oil	3.00 – 3.125	3.00 – 3.125	3.00 – 3.125
Grade C bunker oil, for ships' bunkers, per bbl.	$0.90	$0.90	$0.90
Grade C bunker oil, per bbl. in cargoes	$0.65	$0.65	$0.65

*Less than ½ of 1% sulphur.
†Represents sales only.

MEXICAN CRUDE AND BUNKER OILS (f. o. b. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid, per bbl.	$0.50 –$0.52	$0.50	$0.52
Grade C bunker oil for bunkering, taxes paid, per bbl.	$0.90	$0.90	$0.90
VENEZUELA CRUDE			
F. o. b. deepwater, Lake Maracaibo region	$0.76	$0.77	$0.77
SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F. cold test 0 Tanker, f. o. b. Gulf oil terminals.)			
100 vis. No. 2 unfiltered pale	4.75 – 5.75	4.75 – 5.75	4.75 – 5.75
200 vis. No. 3 unfiltered pale	6.75 – 8.25	6.75 – 8.25	7.00 – 8.25
300 vis. No. 3 unfiltered pale	7.75 – 9.50	7.75 – 9.50	7.75 – 9.50
500 vis. No. 3½ unfiltered pale	8.75 –10.50	8.75 –10.50	9.00 –10.50
750 vis. No. 4 unfiltered pale	10.25 –12.75	10.25 –12.75	10.50 –12.75
1200 vis. No. 4 unfiltered pale	14.00 –16.00	14.00 –16.00	14.00 –16.00
200 vis. No. 5-6 red oil	6.00 – 6.75	6.00 – 6.75	6.25 – 7.00
300 vis. No. 5-6 red oil	7.00 – 7.75	7.00 – 7.75	7.25 – 8.00
500 vis. No. 5-6 red oil	8.00 – 9.00	8.00 – 9.00	8.00 – 9.00
750 vis. No. 5-6 red oil	9.25 –11.50	9.25 –11.50	9.25 –11.50
1200 vis. No. 5-6 red oil	13.00 –15.00	13.00 –15.00	13.00 –15.00

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	Feb. 16	Feb. 9	Feb. 2
Gasoline, U. S. Motor, 53-55 Gravity	5.00	5.00	5.00
Gasoline, U. S. Motor-blends and special cuts	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
Gasoline, 400 e.p. blend.	5.50 – 6.00	5.50 – 6.00	5.50 – 6.00
Gas Oil, 30-34 per bbl.	$0.90 –$0.95	$0.90 –$0.95	$0.90 –$0.95
Diesel Oil, 27 plus, per bbl.	$0.85 –$0.90	$0.85 –$0.90	$0.85 –$0.90
Bunker oil, 14-18 per bbl.	$0.64 –$0.85	$0.64 –$0.85	$0.64 –$0.85
Fuel oil, 14-18 per bbl.	$0.60 –$0.95	$0.60 –$0.95	$0.60 –$0.85
Kerosine, 38-40 w.w., 125-150 flash, per gal.	5.00 – 6.00	5.00 – 6.00	5.00 – 6.00
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.85	$1.75 –$1.85
Gasoline, 400 e.p. blend	$1.85 –$2.00	$1.85 –$2.00	$1.85 –$2.00
Kerosine, 38-40 w.w., 125-150 flash	$1.45 –$1.50	$1.45 –$1.50	$1.45 –$1.50

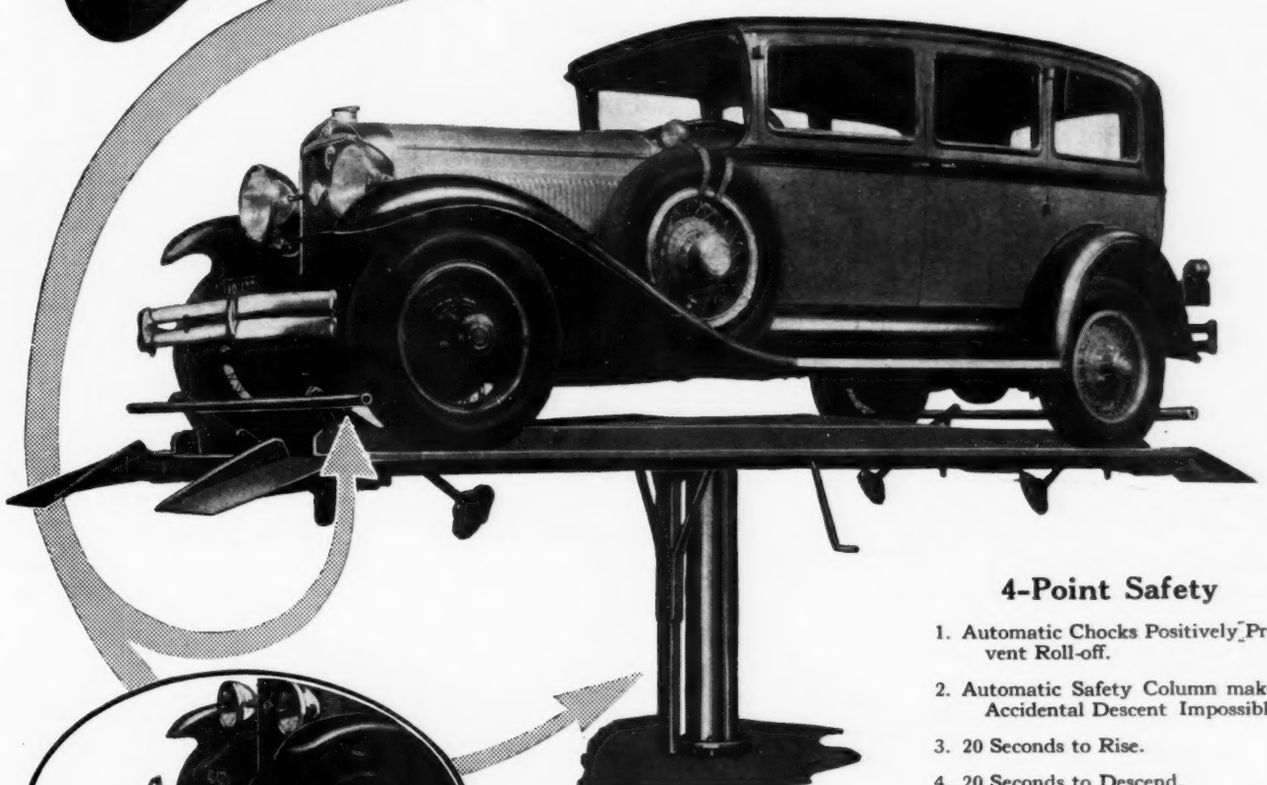
Tanker Rates

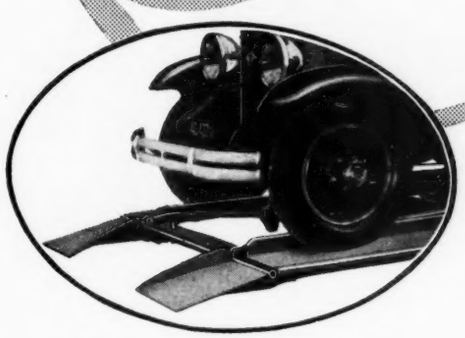
(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling; to American ports, cents per barrel.)

	Feb. 16 Crude &/or Fuel	Feb. 16 Refined Oil &/or Spirits
Calif. to U. K. or Continental ports*	21	18
Gulf to U. K. or Continental ports*	10-11	†10
North Atlantic to U. K. or Continental ports*	9/6	†8/6
Calif. to North Atlantic ports (not E. of N. Y.)	$0.45-$0.50	$0.45-$0.50
Gulf to North Atlantic ports (not E. of N. Y.)**	14-16	15

*Continental ports in the range between Bordeaux and Hamburg, both inclusive. **Venezuela loading same rate, for Tampico 2c to 3c per bbl. additional. †Two ports discharged.

Visible Safety





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1. Automatic Chocks Positively Prevent Roll-off.
2. Automatic Safety Column makes Accidental Descent Impossible.
3. 20 Seconds to Rise.
4. 20 Seconds to Descend.

Only the DeLuxe Service Lift provides *Full Visible Safety*. Of course it also has the usual oil and air valve safety features, but in addition there is full automatic mechanical safety.

The car can't roll off because the automatic chocks rise and lock into position as the lift leaves the ground and remain locked until the lift reaches the down position. As the lift rises the Safety Column automatically drops into position and must be latched up by hand before the lift can possibly descend.

That's *Visible Safety*. There is no chance to forget it . . . it's automatic. The public likes it and the attendants like it. Quicker, better, more satisfactory service is the result. That's why increased patronage invariably follows its installation. You owe it to yourself and to your trade to investigate this marvelous trade winner.

The DeLuxe Hydraulic Rotating

SERVICE LIFT

HOLLISTER-WHITNEY CO., Box N-2, QUINCY, ILL.

Tank Wagon, Service Station Markets for Gasoline and Kerosine

(OIL PRICE HANDBOOK has t.w. and s.s. markets for a whole year, arranged for quick reference)

These Prices in Effect Feb. 16, 1931, as Posted by Principal Marketing Companies

S.O.NEW JERSEY TERRITORY

	Gasoline				Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
Atlantic City, N. J.	11.5	3	14.5	16.5	11.5
Newark, N. J.	10.5	3	13.5	15.5	10.5
Annapolis, Md.	12	4	16	17	11
Baltimore, Md.	11.2	4	15.2	16.2	9.5
Cumberland, Md.	13	4	17	18	12
Washington, D. C.	11.7	2	13.7	14.7	10.7
Danville, Va.	12.8	5	17.8	18.8	11.8
Norfolk, Va.	11.3	5	16.3	17.3	10
Richmond, Va.	11.7	5	16.7	17.7	10.7
Roanoke, Va.	13	5	18	18	12
Petersburg, Va.	12.3	5	17.3	18.3	11.3
Charleston, W. Va.	12.5	4	16.5	17.5	11.5
Keyser, W. Va.	13.1	4	17.1	18.1	12.1
Parkersburg, W. Va.	11.2	4	15.2	16.2	10.2
Wheeling, W. Va.	12.4	4	16.4	17.4	11.4
Raleigh, N. C.	13.2	5	18.2	19.2	12.2
Charlotte, N. C.	13.3	5	18.3	19.3	12.3
Hickory, N. C.	13.6	5	18.6	19.6	12.6
Mt. Airy, N. C.	13.5	5	18.5	19.5	12.5
Salisbury, N. C.	13.5	5	18.5	19.5	12.5
Charleston, S. C.	11.3	6	17.3	18.3	10.3
Columbia, S. C.	13.2	6	19.2	20.2	12.2

Note: 2c per gallon discount off retail t.w. price of gasoline to dealers only thru S. O. New Jersey territory, except Washington, D. C. where discount is 3c.

S. O. NEW YORK

Greater New York City Boroughs of Manhattan, Bronx, Queens & Kings	12.3	2	14.3	15.3	10
Borough of Richmond	12.7	2	14.7	15.7	12
Albany, N. Y.	13.6	2	15.6	16.6	9.5
Buffalo, N. Y.	12.8	2	14.8	15.8	9
Rochester, N. Y.	13	2	15	16	9
Syracuse, N. Y.	13.8	2	15.8	16.8	9.5
Boston, Mass.	12.5	2	14.5	15.5	10
Augusta, Me.	13.8	4	17.8	18.8	12.8
Manchester, N. H.	13.4	4	17.4	18.4	10
Burlington, Vt.	14.3	4	18.3	19.3	10
New Haven, Conn.	13.6	2	15.6	16.6	12.6
Providence, R. I.	12.7	2	14.7	15.7	10

Discounts on gasoline: to uncontrolled dealer accounts, 2.5c per gal. off posted t. w. price; to controlled dealer accounts, 3c off t. w. price, thru territory, except in New York City (not including Staten Island), both classes of dealers given 1c additional discount.

ATLANTIC REFINING

Pittsburgh, Pa.	14	*	14	19	12
Philadelphia, Pa.	14	*	14	19	12
Allentown, Pa.	14	*	14	19	12
Erie, Pa.	14	*	14	18	12
Scranton, Pa.	14	*	14	19	12
Altoona, Pa.	14	*	14	19	12
Dover, Del.	14	3	17	19	12
Wilmington, Del.	14	3	17	19	12
Boston, Mass.	12.5	2	14.5	15.5	10
Springfield, Mass.	13.5	2	15.5	16.5	10
Worcester, Mass.	13.3	2	15.3	16.3	10
Fall River, Mass.	13.1	2	15.1	16.1	10
Providence, R.I.	12.7	2	14.7	15.7	10
Hartford, Conn.	13.5	2	15.5	16.5	10
New Haven, Conn.	13.6	2	15.6	16.6	10
Atlantic City, N. J.	11.5	3	14.5	16.5	11.5
Camden, N. J.	10.6	3	13.6	15.6	10.6
Trenton, N. J.	11	3	14	16	11
Annapolis, Md.	12	4	16	17	11
Baltimore, Md.	11.2	4	15.2	16.2	10.2
Hagerstown, Md.	12.7	4	16.7	17.7	11.7
Richmond, Va.	11.7	5	16.7	17.7	10.7
Wilmington, N. C.	10.4	5	15.4	16.4	12.4
Brunswick, Ga.	14	6	20	22	**15
Jacksonville, Fla.	11	6	17	19	14

Note: 2c per gal.-discount off t.w. price of gasoline on sales to dealers; discount to commercial accounts under contract for one year in accordance with Code of Ethics. Erie has dealer discount of 3c off t.w. price, effective Nov. 6.

*3-cent state tax is collected by retail dealer and paid by him directly to state.

**Georgia kerosine prices include 1c state tax.

Latest Changes in Tank Wagon Prices

Gasoline

S. O. Kentucky—T. w. and s. s. up 1c, Savannah, both 20c, including 6c tax, **Feb. 11.**

T. w. and s. s. cut 2c, Gulfport, both to 16c, including 5c tax, **Feb. 8.**

S. s. only cut 2c, Vicksburg, to 18c, **Feb. 6.**

S. O. Ohio—T. w. and s. s. cut 2c, generally thru Ohio, bringing statewide prices to 14c and 15c respectively, including 4c tax, **Feb. 14.**

All points where prices had been below the statewide level were brought in line with the rest of the state. These points include these counties: Butler, Lucas, Mahoning and Trumbull, in which counties t. w. only was cut 1c, and s. s. remained unchanged at 15c; and Defiance, Hancock, Henry, Marion, Wood and Wyandot counties, where t. w. was cut 2c, and s. s. 1c.

S. O. Indiana—S. s. only cut 2c, E. St. Louis, to 14.7c, **Feb. 14.**

S. s. only cut 2c, St. Louis, to 13.9c, **Feb. 14.**

S. s. only cut 2c, Indianapolis, to 15.9c, **Feb. 14.**

T. w. and s. s. cut 2c, Chicago, to 14c and 15c respectively; including 3c tax, **Feb. 12.**

Continental Oil—Prices at Denver and Cheyenne in last week's issue were changed, but no note published as to date of change. The 14c s. s. price at Denver was effective **Feb. 3;** 19c s. s. price at Cheyenne, **Jan. 6.**

The 2.5c discount of t. w. price at Boise was eliminated, **Jan. 31.**

S. O. California—Posted wholesale price cut 4c, Reno, to 22c, including 4c tax, **Feb. 12.**

Kerosine

Kerosine cut 2c, thru Ohio, to 11c t. w., **Feb. 14.**

Aviation Gasoline

S. O. New Jersey—Stanavo gasoline cut ½c, Newark, to 16.9c t. w., without tax, **Feb. 13;** at Baltimore, to 20.2c, including 4c tax, **Feb. 6;** and at Washington, to 19c, including 2c tax, **Feb. 5.**

S. O. KENTUCKY

	Gasoline				Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
Ashland, Ky.	12	5	17	19	13
Lexington, Ky.	12	5	17	18	13.5
Louisville, Ky.	11	5	16	18	11
Bowling Green, Ky.	14	5	19	21	14.5
Corbin, Ky.	14	5	19	21	15
Paducah, Ky.	12	5	17	19	12
Covington, Ky.	12	5	17	18	13.5
Clarksdale, Miss.	13	5	18	20	13.5
Gulfport, Miss.††	11	5	16	16	13.5
Jackson, Miss.	13	5	18	20	13.5
Natchez, Miss.	13	5	18	20	13.5
Vicksburg, Miss.	13	5	18	18	13.5
Birmingham, Ala‡‡	15	4	19	21	15
Mobile, Ala‡	15	4	19	21	15
Montgomery, Ala.*	15	4	19	21	15.5
Atlanta, Ga.	14	6	20	22	†13.5
Augusta, Ga.	14	6	20	22	†15.5
Macon, Ga.	14	6	20	22	†13
Savannah, Ga.	14	6	20	20	†14
Jacksonville, Fla.	13	6	19	21	14
Miami, Fla.	14	6	20	22	15
Tampa, Fla.	13	6	19	21	14
Pensacola, Fla.**	14	6	20	22	15

Note: Net price of gasoline to dealers is 2c under posted t.w. price thru S. O. Kentucky territory.

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosine at Montgomery included.

†Georgia kerosine prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

‡Mobile gasoline prices include 1c city tax.

‡‡Birmingham gasoline prices include 1c city tax.

S. O. OHIO

Ohio statewide	10	4	14	15	11

Note: Discount on gasoline to dealers and commercial consumers generally thru Ohio is 2c per gal. off above t.w. prices.

Discount on kerosine to dealers and commercial consumers is 3c per gal. off t.w. price thru Ohio.

S. O. INDIANA

	Gasoline				Oil
	T.W.	Tax	Total T.W.	S.S.	T.W
Chicago, Ill.	11	3	14	15	11
Decatur, Ill.	13.4	3	16.4	17.4	11
E. St. Louis, Ill.	10.7	3	13.7	14.7	10.2
Joliet, Ill.	13.4	3	16.4	17.4	11
Peoria, Ill.	13.4	3	16.4	17.4	11
Quincy, Ill.	13.2	3	16.2	17.2	10.8
Springfield, Ill.	13.4	3	16.4	17.4	11
Indianapolis, Ind.	10.9	4	14.9	15.9	12.1
Evansville, Ind.	13.1	4	17.1	18.1	11.9
South Bend, Ind.	13.4	4	17.4	18.4	12.2
Detroit, Mich.	13.8	3	16.8	15.8	12.7
Grand Rapids, Mich.	12.7	3	15.7	16.7	12.6
Saginaw, Mich.	13.9	3	16.9	17.9	12.8
Green Bay, Wisc.	13.6	2	15.6	16.6	11.4
Madison, Wisc.	13.3	2	15.3	16.3	11.1
Milwaukee, Wisc.	13.1	2	15.1	16.1	10.9
La Crosse, Wisc.	14.2	2	16.2	17.2	12
Minneapolis, Minn.	14.2	3	17.2	18.2	11.9
Duluth, Minn.	14.5	3	17.5	18.5	11.9
Mankato, Minn.	14.1	3	17.1	18.1	11.7
Des Moines, Ia.	13.5	3	16.5	17.5	11.3
Davenport, Ia.	13.5	3	16,5	17.5	11.3
Sioux City, Ia.	13.1	3	16.1	17.1	10.9
Mason City, Ia.	13.5	3	16.5	17.5	11.3
St. Louis, Mo.	*10.9	2	12.9	13.9	10.3
Kansas City, Mo.	†13.9	2	15.9	16.9	9.6
St. Joseph, Mo.	†13.5	2	15.5	16.5	10.1
Fargo, N. D.	15.9	3	18.9	17	13.9
Grand Forks, N. D.	16.2	3	19.2	20.2	14.2
Minot, N. D.	15.9	3	18.9	19.9	13.9
Pierre, S. D.	14	4	18	19	12.4
Huron, S. D.	14.3	4	18.3	17.5	12.7
Wichita, Kans.	11.8	3	14.8	13.8	9.8
Bartlesville, Okla.	11.5	4	15.5	18.5	9.5

S. O. Indiana's quantity contract price schedule thru territory (except in Chicago, which see below) on tank truck deliveries of gasoline, figured from the service station price is 3c for 500 gal. or more a month; and 4½c for 75,000 gals. or more a month.

In Chicago and vicinity, these discounts apply Over 500 gals. per month, 4c per gal. off service station price; over 1,000 gals. per month, 5c per gal. of service station price.

*Includes city tax of ½c.

†Includes city tax of 1c.

Above prices include these inspection fees on both gasoline and kerosine, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosine; Arkansas, 1/20c on both; Florida, 1/8c on both; Illinois, 3/100c on both; Indiana, 2/25c to 1/2c on both; Kansas, 3/50c on both; Louisiana, 1/32c on gasoline; Minnesota, 3/50c on both; Missouri, 1/50c to 1/2c on both; Nebraska 3/100c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina, 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c to 4/5c on kerosine; Wisconsin, 1/25c on both.

Kerosine inspection fees only, per gallon; Iowa 7/100c; Michigan, 1/5c to 4/5c per gal.

Tank Wagon, Service Station Markets for Gasoline and Kerosine

These Prices in Effect Feb. 16, 1931, as Posted by Principal Marketing Companies

S. O. NEBRASKA

	Gasoline T.W.	Tax	Gasoline Total T.W.	Oil S.S.	Oil T.W.
Omaha, Neb	13.25	4	17.25	18.25	11.25
McCook	14.75	4	18.75	20.75	12.75
Norfolk	13.25	4	17.25	17.25	11.75
North Platte	14.75	4	18.75	20.75	12.50
Scottsbluff	12	4	16	16	12.25

Note: Discounts: 1c per gal. off tank wagon price of gasoline for 1,000 gallon dumps per month to consumers taking tank wagon delivery only, discount applying only at normal points.

S. O. LOUISIANA

	Posted Retail T.W.	Tax	Total Posted Retail T.W.	Posted Retail S.S.	T.W.
Little Rock, Ark	11	5	16	17	12
Alexandria, La	12.5	*6	18.5	19.5	†13
Baton Rouge, La	12.5	5	17.5	18.5	†13
New Orleans, La	10.5	*6	16.5	17.5	†12
Lake Charles, La	12.5	*6	18.5	19.5	†13
Shreveport, La	12.5	5	17.5	18.5	†13
Lafayette, La	12.5	*6	18.5	19.5	†13
Bristol, Tenn	15	5	20	21	14
Chattanooga, Tenn	13.5	5	18.5	19.5	13
Knoxville, Tenn	14	5	19	20	15
Nashville, Tenn	13	5	18	19	15
Memphis, Tenn	12	5	17	18	12.5

Note: Discounts in S. O. La. territory: To dealers and commercial consumers from the tankwagon, 2c per gal. off posted retail t.w. price.

*Lake Charles, Alexandria, New Orleans and Lafayette gasoline tax includes 5c state tax and 1c parish tax. New Orleans kerosine price includes 1c parish tax in addition to 1c state tax.

†Kerosine price in Louisiana includes 1c state tax.

MAGNOLIA PETROLEUM

	Gasoline T.W.	Tax	Gasoline Total T.W.	Oil S.S.	Oil T.W.
Muskogee, Okla	11	4	15	18	9
Oklahoma City	9	4	13	16	10
Tulsa, Okla	9	4	13	17	10
Fort Smith, Ark.†	13.5	4	17.5	18.5	12
Little Rock, Ark	11	5	16	17	12
Texarkana, Ark.*	13	4	17	17	11
Dallas, Tex	10	4	14	17	11
Fort Worth, Tex	10	4	14	17	10
Houston, Tex	10	4	14	18	11
San Antonio, Tex	9	4	13	17	10
El Paso, Tex	12	4	16	20	12

*Within city of Texarkana, the state tax on gasoline is 4c per gal. conforming with the Texas state tax. In this district outside of the city the 5c Arkansas tax applies.

†Within city of Fort Smith, Oklahoma tax of 4c applies. In this district outside of the city, the 5c Arkansas tax applies.

CONTINENTAL OIL

Denver, Colo	8	4	12	14	13.5
Pueblo, Colo	10	4	14	17	13.5
Grand Junc., Colo	14	4	18	19	17
Casper, Wyo	13	4	17	20	12
Cheyenne, Wyo	14	4	18	19	13.5
Butte, Mont	14	5	19	22	18
Helena, Mont	15	5	20	23	18
Salt Lake City, Utah	15.5	3½	19	22	17
Boise, Ida.*	17.5	5	22.5	..	19
Twin Falls, Ida.*	17.5	5	22.5	..	19
Albuquerque, N. M.	11	5	16	20	14

***2.5c off t.w. to dealers at time of delivery at Twin Falls, effective Dec. 16.**

S. O. CALIFORNIA

	Tax	Retail Price	Posted Wholesale	T.W.
Phoenix, Ariz	5	22.5	20.5	20
Los Angeles, Cal	3	20.5	20.5	15.5
Fresno, Cal	3	21	21	17
San Francisco, Cal	3	21	21	15.5
Reno, Nev	4	20	22	19
Portland, Ore	4	22.5	22.5	16.5
Seattle, Wash	3	21.5	21.5	16.5
Spokane, Wash	3	22	22	20.5
Tacoma, Wash	3	21.5	21.5	16.5

Note: 4c per gal. discount to dealers off posted retail price of gasoline to customers taking tank truck delivery, thru S. O. California territory except 3c discount at Phoenix plus a 2c special temporary discount Jan. 30, subject to withdrawal at any time. This discount determines net t.w. price.

CANADA

Per Imperial Gallon, which is 1.2 American Gallons)

	Gasoline T.W.	Tax	Gasoline Total T.W.	Oil S.S	Oil T.W.
ONTARIO					
Toronto	18.5	5	23.5	27	19.5
Ottawa	18.5	5	23.5	27	19.5
North Bay	21.5	5	26.5	32	22.5
Ft. William	21.5	5	26.5	30	21.5
Border Cities, including Windsor	17.5	5	22.5	26	18.5
MANITOBA					
Winnipeg	20	5	25	29	20.5
SASKATCHEWAN					
Regina	25	5	30	34	24
ALBERTA					
Edmonton	26.5	5	31.5	35	26.5
Calgary	22.5	5	27.5	31	22.5
BRITISH COLUMBIA					
Vancouver	23	5	28	30	24
QUEBEC					
Montreal	19.5	5	24.5	28	20.5
Quebec City	20.5	5	25.5	29	21.5
Three Rivers	20.5	5	25.5	29	21.5
NEW BRUNSWICK					
St. John	19	5	24	28	21
Moncton	19	5	24	28	21
NOVA SCOTIA					
Halifax	19	5	24	28	21
PRINCE EDWARD ISLAND					
Charlottetown	19	5	24	28	21

Note: In districts surrounding these points 1c additional is added to city price.

NAPHTHA PRICES

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	12.7	14.7	16.2
Detroit	15.4	16.9	17.7
Kansas City	†13.9	†15.4	†16.2
Milwaukee	14.4	*17.9	*18.7
Minneapolis	**18.7	**20.2	**21
St. Louis	13.6	15.1	15.9
New York		14	20
Boston		17	20

*Includes 2c state tax. †Includes 1c city tax.
**Includes 3c state tax.

Petroleum Spirits (Solvent)

Tank Cars (F.o.b.refinery or seaboard terminal)	
New York harbor	10.00
Philadelphia district	10.00
Providence	10.50
Tank Wagon or Steel Barrels	
New York City	14
Syracuse	17
Rochester	18
Buffalo	16
Providence	17
Boston	17
Bridgeport	15
Newark	16
Philadelphia	14
Lancaster	17
Altoona	17
Baltimore	17

Note: 2c off above t.w. prices to large buyers in some instances.

Aviation Gasoline Prices

Following are tank wagon prices of aviation gasoline in principal marketing territories showing state and municipal taxes:

S. O. NEW JERSEY

Prices in Effect Feb. 16, 1931

	T.W.	Tax	Total T.W.
Newark, N. J	16.9	*	16.9
Baltimore, Md	16.2	4	20.2
Washington, D. C	17	2	19

*New Jersey road tax of 3c does not apply on aviation gasoline, exemption being claimed at time of purchase.

All above prices are on Stanavo Aviation Gasoline

COLONIAL BEACON OIL CO.

New York City	17.5	2	19.5
Boston	17	2	19

S. O. PENNSYLVANIA

Philadelphia, Pa	18	3	21
Pittsburgh, Pa	18	3	21
Altoona, Pa	18	3	21

S. O. OHIO

Thru Ohio	15	4	19

Discounts given by S. O. Ohio: For airport delivery only; 2,000 gals. or over per month, 1c per gal.; 6,000 gals. or over per month, 2c; 12,000 gals. and over per month, 3c; 24,000 gals. and over per month, 4c.

S. O. INDIANA

Chicago	16	3	19
Indianapolis, Ind	16.3	4	20.3
Detroit, Mich	16.8	3	19.8
Milwaukee, Wis	16.1	2	18.1
Minneapolis, Minn	17.2	3	20.2
St. Louis, Mo	15.4	2	17.4
Kansas City, Mo	15.9	3	18.9
Fargo, N. D	18.9	3	21.9
Huron, S. D	17.3	4	21.3
Wichita, Kan	14.8	3	17.8

In S. O. Indiana territory, buyer pays state and city taxes on aviation gasoline, and if he can get a refund from the state, he does so. Kansas City tax of 3c includes 1c city tax.

S. O. LOUISIANA

New Orleans, La	18	6	24
Nashville, Tenn	20	5	25
Memphis, Tenn	19	5	24

2c per gal. discount off above t. w. prices to dealers and commercial consumers.

S. O. NEBRASKA

	T.W.	Tax	Total T.W.
Omaha	16.25	4	20.25

2c per gal. refund to reseller.

CONTINENTAL OIL CO.

Denver, Colo	11	4	15
Cheyenne, Wyo	17	4	21
Helena, Mont	18	5	23
Salt Lake City, Utah	18.5	3.5	22
Albuquerque, N. M.	15	5	20
Boise, Ida	20.5	5	25.5

S. O. CALIFORNIA

Phoenix, Ariz	12	4	21.5
Los Angeles, Cal	16.5	3	19.5
San Francisco, Cal	17	3	20
Reno, Nev	21	4	25
Portland, Ore	17.5	4	21.5
Seattle, Wash	17.5	3	20.5
Spokane, Wash	21.5	3	24.5

Note: 4c per gallon added to t.w. price, in S. O. California territory, to customers taking delivery direct into the fuel tank of planes.

Special Rates to Meet Competition

WASHINGTON, Feb. 16.—Railroads serving the Los Angeles territory recently asked for and obtained permission from the Interstate Commerce Commission to cut the rate on petroleum refined oils, including distillate, to Boulder City and Las Vegas, a distance of 324 miles, from 61 cents on distillate to Las Vegas and 64 cents on other refined oils to 45 cents a hundred pounds. The rates to Boulder City were cut from 64 to 69 cents to 45 cents.

The railroads frankly said that, unless they made the reductions, motor trucks would carry the traffic. The petroleum products are needed by contractors preparing railroads and highways for the construction of Hoover Dam. The traffic is expected to amount to one carload a day for five months.

At any angle
—in any light

OIL

sells faster in these bottles

You can't afford to take any chance on your oil samples. You never know how they are going to be looked at. Some buyers hold them right side up—some hold them upside down.

Owens-Illinois sample oil bottles are made to take care of every situation that an oil sample is likely to meet.

Made of the finest perfume bottle glass, handblown with the utmost care, these bottles show your oil to the best advantage at any angle and in any light. That's why oil sampled in these bottles sells faster.

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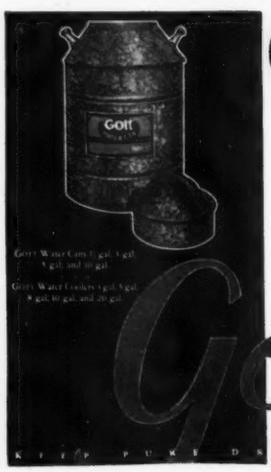
General Sales Offices:
PITTSBURGH, PA.

District Sales Offices: **New York, Boston, Philadelphia, Louisville, Atlanta, Houston, New Orleans**



Gott *Water Cans & Coolers*

The GOTT Water Can is the safe, handy way to keep a clean supply of pure water always handy wherever you may be... It's health insurance ...*your supply store has them.*

Gotkool

H. P. GOTT MFG. CO. • Winfield, Kansas

KEEP PURE DRINKING WATER ALWAYS HANDY

Crude Oil Prices (in Effect Feb. 16, 1931)

Crude prices for the whole year in OIL PRICE HANDBOOK published annually

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Bradford—Allegheny district (posted by Tide Water Pipe Co., Ltd.) (Effective Nov. 12, 1930) $2.15
Penna. Grade Oil in National Transit Lines (Effective Nov. 12, 1930) *1.85
Penna. Grade Oil in Southwest Penna. Pipe Lines (Effective Nov. 12, 1930) 1.80
Penna. Grade Oil in Eureka Pipe Lines (West Virginia) (Effective Nov. 12, 1930) 1.70
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.) (Effective Nov. 12, 1930) 1.45
Corning Grade in Buckeye Pipe Lines (Ohio) (Effective Dec. 31, 1930) 1.15
Somerset oil in main system of Cumberland Pipe Line (posted by Ashland Refining Co.) (Effective Dec. 18) $1.03
Ragland Grade in Cumberland Pipe Lines (Kentucky) (Effective Jan. 9, 1929) $0.60
*Oil run prior to July 1, 1929 is 5c less per bbl.

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines (Effective Dec. 19, 1930) $0.80

MICHIGAN

(Posted by Dixie Oil Co.)

Traverse and Dundee (Muskegon), effective Oct. 28, 1930, same gravity and price schedule as Prairie posts in Oklahoma and Kansas, which see below.

(Posted by Pure Oil Co.)

Midland, Midland County (Oct. 28, 1930) $1.10

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Effective Oct. 28, 1930

Wooster	$1.35	Princeton	$1.30
Lima	1.10	Illinois	1.30
Waterloo	1.20	Plymouth	0.88
Indiana	0.87	West Kentucky	1.15

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Effective Oct. 28, 1930

Petrolia $1.50
Oil Springs 1.57

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of *Stanolind Crude Oil Purchasing Co. (In Oklahoma, Kansas, †North and North Central Texas)

Effective Oct. 25, 1930

Below 29	$0.65	35-35.9	$0.92
29-29.9	0.69	36-36.9	0.95
30-30.9	0.73	37-37.9	0.98
31-31.9	0.77	38-38.9	1.01
32-32.9	0.81	39-39.9	1.04
33-33.9	0.85	40 and above	1.07
34-34.9	0.89		

*Prairie Oil & Gas withdrew postings in Oklahoma, Kansas and Texas, Jan. 1, 1931.

†Excepting Wichita, Wilbarger and Foard counties, which see below.

North Texas: Wichita, Wilbarger and Foard Counties

Effective Jan. 16, 1931

Below 29	$0.55	35-35.9	$0.69
29-29.9	0.57	36-36.9	0.71
30-30.9	0.59	37-37.9	0.73
31-31.9	0.61	38-38.9	0.75
32-32.9	0.63	39-39.9	0.77
33-33.9	0.65	40 and above	0.79
34-34.9	0.67		

On Oct. 27, The Texas Co. met Stanolind prices in Oklahoma, on Oct. 28, in North Central Texas and on Jan. 15, 1931, in North Texas same as Stanolind in Wichita, Wilbarger, etc.

Humble Oil & Refining Co. Prices

Effective Oct. 28, 1930

In Ranger, Mexia, Powell, Boggy Creek, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona fields all in Texas, same prices as Stanolind, which see above.

In North Texas, including Wichita, Wilbarger, Archer and Northern Young counties, same schedule as Stanolind in Wichita, Wilbarger, etc., effective Jan. 14.

Magnolia Petroleum Co.

(In Oklahoma, Kansas, North and East Central Texas)

Effective Oct. 28, 1930

Magnolia posts same prices in all three states as Stanolind, except these lower grades:

Below 26	$0.53	27-27.9	$0.61
26-26.9	0.57	28-28.9	0.65

In Wichita, Wilbarger, Archer, Northern Young, Clay and Montague counties, same prices as Stanolind in Wichita, Wilbarger, etc., effective Jan. 15.

Effective Oct. 28, 1930

Corsicana heavy $0.75
Luling 0.75
Mirando (Jan. 15, 1931) 0.69
Darst Creek, 60° and above 0.90

Carter Oil Co.

(Oklahoma and Kansas)

Oct. 27, 1930, same schedule as Stanolind, which see.

PANHANDLE TEXAS

Humble Oil & Refining Co.

Effective Jan. 14, 1931

Hutchinson and Carson Counties:

Below 29	$0.43	35-35.9	$0.57
29-29.9	0.45	36-36.9	0.59
30-30.9	0.47	37-37.9	0.61
31-31.9	0.49	38-38.9	0.63
32-32.9	0.51	39-39.9	0.65
33-33.9	0.53	40 and above	0.67
34-34.9	0.55		

Gray County:

Below 29	$0.48	35-35.9	$0.62
29-29.9	0.50	36-36.9	0.64
30-30.9	0.52	37-37.9	0.66
31-31.9	0.54	38-38.9	0.68
32-32.9	0.56	39-39.9	0.70
33-33.9	0.58	40 and above	0.72
34-34.9	0.60		

Above prices met by Magnolia and The Texas Co. on Jan. 15 in Hutchinson, Carson and Gray counties.

Wheeler County: Posted by Magnolia Pet. Co. Effective Apr. 10. Humble withdrew Wheeler county postings Apr. 10.

Below 30	$0.755	37-37.9	$1.11
30-30.9	0.805	38-38.9	1.145
31-31.9	0.855	39-39.9	1.18
32-32.9	0.905	40-40.9	1.215
33-33.9	0.955	41-41.9	1.25
34-34.9	1.005	42-42.9	1.285
35-35.9	1.04	43-43.9	1.32
36-36.9	1.075	44 and above	1.355

WEST TEXAS and NEW MEXICO

Humble Oil & Refining Co.

Effective Oct. 28, 1930

Crane, Upton, Crockett, Ector, Howard and Glasscock Counties, Tex., also Lea County, N. Mex.

Below 25	$0.50	31-31.9	$0.64
25-25.9	0.52	32-32.9	0.66
26-26.9	0.54	33-33.9	0.68
27-27.9	0.56	34-34.9	0.70
28-28.9	0.58	35-35.9	0.72
29-29.9	0.60	36 and above	0.74
30-30.9	0.62		

Winkler and Pecos counties, Tex.:

Effective Oct. 28, 1930

Below 25	$0.55	31-31.9	$0.69
25-25.9	0.57	32-32.9	0.71
26-26.9	0.59	33-33.9	0.73
27-27.9	0.61	34-34.9	0.75
28-28.9	0.63	35-35.9	0.77
29-29.9	0.65	36 and above	0.79
30-30.9	0.67		

Oct. 28, 1930, The Texas Co. same prices in Crane, Upton, Winkler and Lea counties as Humble.

Oct. 28, Magnolia same prices in Winkler, Crane, pton, Howard, Glasscock and Mitchell counties.

SOUTH and SOUTHWEST TEXAS

(Posted by Humble Oil & Refining Co.)

Effective Oct. 28, 1930

Mirando (Jan. 15, 1931) $0.69
Salt Flat 0.90
Darst Creek 0.90
Pettus, Bee County 1.10

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton, De Soto, Sabine, Cotton Valley, Sarepta and Carterville.

Effective Oct. 30, 1930

Below 29	$0.65	35-35.9	$0.92
29-29.9	0.69	36-36.9	0.95
30-30.9	0.73	37-37.9	0.98
31-31.9	0.77	38-38.9	1.01
32-32.9	0.81	39-39.9	1.04
33-33.9	0.85	40 and above	1.07
34-34.9	0.89		

Smackover, all grades $0.70
Bellevue (Oct. 30) 1.00
*Urania, La. (Oct. 30, 1930) 0.75
†East El Dorado (Calion) (Oct. 30) 0.70

*Posted by Louisiana Oil Refining Corp.
†Posted by Magnolia Petroleum Co.

Oct. 28, 1930, The Texas Co. same schedule in Louisiana as Standard.

Oct. 30, Magnolia met Standard schedule in Louisiana-Arkansas fields except it posts the same low grades in La.-Ark. as in Mid-Continent.

STEPHENS, ARKANSAS

Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.

Effective Oct. 30, 1930

Below 29	$0.54	31-31.9	$0.66
29-29.9	0.58	32 and above	0.70
30-30.9	0.62		

GULF COASTAL

Posted by Humble Oil & Refining Co.

Effective Jan. 14, 1931

Grades A	$0.80	32-32.9	$0.85
Grades B:		33-33.9	0.87
Below 25	0.69	34-34.9	0.89
25-25.9	0.71	35-35.9	0.91
26-26.9	0.73	36-36.9	0.93
27-27.9	0.75	37-37.9	0.95
28-28.9	0.77	38-38.9	0.97
29-29.9	0.79	39-39.9	0.99
30-30.9	0.81	40 and above	1.01
31-31.9	0.83		

On Oct. 28, The Texas Co. posted same prices on Grades A and B Gulf Coast crude as Humble.

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling, Humble, Pierce Junction, Sugarland, Refugio county, and Raccoon Bend. All other fields are Grades A only.

Specifications for Grade "A" crude: Gravity, 25° and below, at 60° F; Viscosity: not less than 100 seconds at 100° F. Saybolt.
Sulfur: not over .4%.

Grade "B" includes all Coastal crude which does not meet the test for "A" grades.

Fuel Oil Causes Railroad Row

WASHINGTON, Feb. 14.—Fuel oil has started a fight between railroads hauling coal from mines in Alabama to New Orleans, Mobile, Pensacola and Small Gulf ports and railroads hauling coal from mines in the Virginias, Kentucky and Tennessee to Hampton Roads ports, such as Norfolk and Portsmouth, Va.

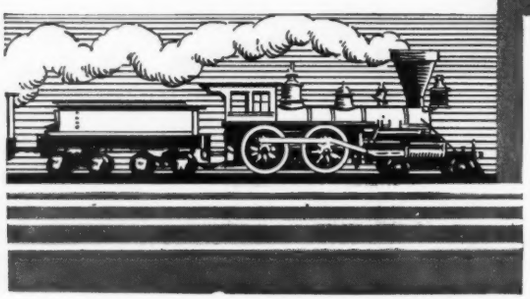
The far southern railroads have cut the rates on bunker coal, in an effort to compete on better terms, they say, with fuel oil supplied to ships in the far southern ports nearly 80 per cent of which are now supplied from tankships with fuel oil.

The more northern mine operators and railroads do not believe that that is the reason for the cut in rates to the far southern ports. They think the Gulf ports are trying to take some of their business away from them. Therefore they have appealed to the Interstate Commerce Commission to hold up the reduced rates, make an investigation and finally forbid the reductions.

Technical Editor Joins Chek-Chart

CHICAGO, Feb. 16.—Howard Pite, formerly technical editor of Automobile Trade Journal, joined the staff of Chek-Chart Corp. Feb. 16, Raymond Shaw, president of Chek-Chart, announced.

STEEL RAILS made modern locomotives possible . . .



Ethyl opened the way to BETTER *automobiles*

IN 1860, wiseacres said the peak had been reached in railroad transportation. Iron rails could not stand any more weight. Locomotives would never be any larger.

Then steel rails, made possible by Bessemer's converter, opened the way to further progress; opened the way to the giant locomotives of today.

* * *

Automobiles faced a dead line a few years ago. Gasoline could not stand the high pressure demanded by more efficient motors.

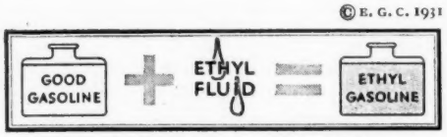
Then Ethyl fluid was discovered. Added to good gasoline, it makes a motor fuel that stands high pressures without "knocking," and consequent power loss. The opportunity for progress that steel rails gave railroading, Ethyl Gasoline has given the oil and automotive industries.

High compression motors, powered by fuel that stands the pressures without "detonating," point the way to further improvement in automotive efficiency. To the oil industry this means an increasing market for premium fuel. To the public and to automobile manufacturers higher compression motors offer:

Increased power without increased weight
Increased accelerating ability
Decreased heat waste to reduce radiator size and protect engine parts.

By the addition of Ethyl fluid, gasoline conquered the limitation that threatened to block automotive progress. Today Ethyl Gasoline offers a fuel superior to the needs of any automobile on the market; and the end is not in sight. Ethyl Gasoline Corporation, New York City.

© E. G. C. 1931



The active ingredient used in Ethyl fluid is lead

ETHYL GASOLINE

Crude Oil Prices (in Effect Feb. 16, 1931)

(Prices are per barrel at the well)

(Crude Oil Prices for the whole year in OIL PRICE HANDBOOK published annually)

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective Oct. 27, 1930)

Salt Creek 29-29.9	$0.69
" 30-30.9	0.73
" 31-31.9	0.77
" 32-32.9	0.81
" 33-33.9	0.85
" 34-34.9	0.89
‡Salt Creek 35-35.9	$0.92
" " 36-36.9	0.95
" " 37 and above	0.98
Elk Basin	1.25
Grass Creek light	1.25
Big Muddy	1.00
Lance Creek	1.33
Rock Creek	1.01
Mule Creek	1.20
Rex Lake	$1.10
Pondera	1.45
‡Osage	0.85
‡Cat Creek, Mont.	1.25
Sunburst, Mont.	1.55
‡Hogback, N. Mex.	1.40
Artesia, N. Mex.	0.75

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

CALIFORNIA

Standard Oil Co. of California

(Effective Sept. 15, 1930)

Gravity	Signal Hill Seal Beach Alamitos Heights Huntington Beach Inglewood* Olinda-Brea Canon*	Athens Rosecrans Dominguez	Elwood Terrace	Torrance Richfield	Whittier La Habra	Montebello	Coyote	Santa Fe Springs	Newhall McKittrick Kern River	Midway-Sunset Elk Hills Buena Vista Hills Lost Hills	Coalinga	Wheeler Ridge	Playa del Rey	‡Kettleman Hills	Orcutt (Santa Maria) (Union Oil Co.)	Santa Paula (Ventura) (Union Oil Co.)	Ventura Avenue (Associated Oil Co)
14-14.9**	$0.70	....	....	$0.70	$0.70	$0.70	$0.70	....	$0.55	$0.55	$0.55	$0.55	....	....	$0.55	$0.70	$0.70
15-15.9	.70	....		.70	.70	.70	.70	....	.55	.55	.55	.55	....	....	.55	.70	.70
16-16.9	.70	....		.70	.70	.70	.70	....	.55	.55	.55	.55	....	$1.65	.55	.70	.70
17-17.9	.70	....		.70	.70	.70	.70	....	.55	.55	.55	.55	....	for	.55	.70	.70
18-18.9	.76	....		.76	.76	.71	.76	....	.55	.62	.62	.62	....	55*	.65	.75	.76
19-19.9	.82	....		.82	.82	.77	.82	....	.55	.70	.70	.70	....	gravity	.70	.80	.82
20-20.9	.88	....		.88	.87	.83	.87	....	....	.78	.78	.78	$0.74	and	.78	.85	.88
21-21.9	.94	....	F.o.b. ships	.94	.93	.90	.93	$0.92	....	.86	.86	.86	.77	over	.90	.90	.91
22-22.9	1.00	....	....	1.00	.98	.97	.98	.95	....	.94	.94	.94	.81	....	.95	.97	.94
23-23.9	1.07	....	....	1.07	....	1.05	1.04	1.01	....	1.02	1.02	1.02	.84	....	1.02	1.05	1.00
24-24.9	1.12	1.12	....	1.12	....	1.08	1.08	1.05	....	1.06	1.04	1.04	.87	....	1.08	1.07	1.05
25-25.9	1.17	1.17	....	1.17	....	1.11	1.12	1.09	....	1.10	1.06	1.06	.90	....	1.11	1.09	1.10
26-26.9	1.22	1.22	....	1.22	....	1.15	1.16	1.13	....	1.14	1.08	1.08	....	....	1.15	1.12	1.15
27-27.9	1.26	1.27	....	1.26	....	1.19	1.21	1.18	....	1.18	1.11	1.10	....	....	....	1.16	1.19
28-28.9	1.30	1.32	....	1.30	....	1.23	1.25	1.23	....	1.23	1.15	....	....	....	....	1.20	1.23
29-29.9	1.34	1.37	....	††1.34	....	1.26	1.29	1.28	....	1.29	1.19	....	....	....	....	1.24	1.27
30-30.9	1.38	1.42	....	††1.38	....	1.29	1.33	1.33	....	1.35	1.23	....	....	....	....	1.29	1.31
31-31.9	1.43	1.47	....	....	....	....	....	1.38	....	1.41	1.27	....	....	....	....	1.34	1.36
32-32.9	1.48	1.52	....	....	....	....	....	1.43	....	1.47	1.31	....	....	....	....	1.40	1.41
33-33.9	....	1.57	....	....	....	....	....	1.48	....	1.53	1.35	....	....	....	....	1.46	1.47
34-34.9	....	1.62	1.32	....	....	....	....	1.53	....	††1.59	1.39	....	....	....	....	....	1.53
35-35.9	....	1.66	1.39	....	....	....	....	1.58	....	††1.65	1.43	....	....	....	....	....	1.59
36-36.9	....	1.72	1.46	....	....	....	....	1.63	....	....	....	....	....	....	....	....	....
37-37.9	....	1.78	1.53	....	....	....	....	1.68	....	....	....	....	....	....	....	....	....
38-38.9	....	1.84	1.60	....	....	....	....	1.73	....	....	....	....	....	....	....	....	....
39-39.9	....	1.90	1.66	....	....	....	....	1.78	....	....	....	....	....	....	....	....	....
40-40.9	....	1.96	1.72	....	....	....	....	....	....	....	....	....	....	....	....	....	....
41-41.9	....	2.02	1.78	....	....	....	....	....	....	....	....	....	....	....	....	....	....
42-42.9	....	2.08	1.84	....	....	....	....	....	....	....	....	....	....	....	....	....	....

*Inglewood prices run only to 28.9 gravity; Olinda-Brea Canon to 31.9 gravity.
†Richfield crude only. ††These two grades apply on Lost Hills only.
**Standard does not contract for crude testing below 14 gravity, but pays 45c per barrel when purchased.
‡Union Oil Co.'s prices on Kettleman Hills crude are effective Sept. 15: 35-39.5, $1.10; 40-44.9, $1.20; 45-49.9, $1.35; 50-54.9, $1.50; and 55 and above $1.65.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

Refiners' Supplies

	Feb. 16	Feb. 9
Soda Ash Light 58% bags, cwt.	$1.20-1.38	$1.20-1.38
Silicate of Soda 60 deg. drums, cwt.	$1.75-1.90	$1.75-1.90
Silicate of Soda 40 deg. tank cars, cwt.	$0.70	$0.70
Silicate of Soda 40 deg. drums, cwt.	$1.00	$1.00
Sal Soda wks.	$0.90-1.10	$0.90-1.10
Caustic Soda 76% solid, cwt.	$2.25-2.50	$2.25-2.50
Sulfuric Acid 60 deg. tank cars, f. o. b. shipping point per ton	$11.00-12.50	$11.00-12.50
Sulfur, flowers of, cwt.	$3.10-4.00	$3.10- 4.00
Liquid Chlorine, tank cars, wks., lb.	1.75	1.75

Compounders' Supplies

	Feb. 16	Feb. 9
Vegetable Oils		
Linseed carloads, spot, lb.	9.00	9.00
Tanks, spot	8.40	8.40
Soya Bean, Tank, coast, lb.	7.10	7.30
Oleic Acid		
Distilled, tanks, lb.	7.50	7.50
Distilled, bbls., lb.	8.375	8.375
Saponified, tanks, lb.	7.75	7.75
Saponified, bbls., lb.	8.625	8.625
Lard Oils		
Prime Winter Strained, lb.	12.50	12.75
Extra Winter Strained, lb.	9.50	9.75
Extra, lb.	9.25	9.50
Extra No. 1, lb.	8.75	9.00
No. 1, lb.	8.50	8.75
No. 2, lb.	8.25	8.50
Tallow oil, lb.	8.00	8.25
Neatsfoot Oil		
Pure, bbls., lb.	11.00	11.25
Extra, bbls., lb.	9.00	9.25
No. 1 bbls., lb.	8.75	9.00
Cold Pressed, lb.	15.25	15.25
Fish Oils		
Menhaden Oil		
Light Pressed, gal.	36–38	36–38
Light Pressed, tank cars, N. Y., gal.	28–30	28–30
Yellow bleached, gal.	39	39
Whale, extra winter bleached, gal.	80	80
Naval Stores		
Steam, distilled turpentine, N. Y., gal.	41	40
Steam, distilled turpentine, Savannah, gal.	39	38
Gum turpentine, N. Y., gal.	42.50-43.50	42.50-43.50
Gum turpentine, f.o.b. cars Savannah, gal.	37.50-38.50	37.50-38.50
Wood Rosin, N. Y., bbl.	$4.56	$4.56
Wood Rosin F, Savn'h, bbl.	$4.86	$4.86
Gum Rosin B, N. Y., bbl.	$4.35	$4.25
Gum Rosin B, f. o. b. cars Savannah, bbl.	$3.55	$3.45
Rosin oil, pure, gal.	56	56
Rosin, oil, compounded, gal.	50	50
Pine Tar		
Kiln burnt, bbl.	$13.00-14.00	$13.00-14.00
Retort, bbl.	$13.50-14.50	$13.50-14.50
Alcohol		
Denatured Formula 5, in bbls., per gal.	46–48	46–48

Outstanding Program Prepared For Meeting of Ohio Jobbers

COLUMBUS, O., Feb. 14

SUCH diversity of types of speakers and subjects as has been arranged for the fifteenth semi-annual meeting of the Ohio Petroleum Marketers Association by W. A. Milne, executive secretary, cannot fail to be both instructive and stimulating. The meeting will be at Neil House here, Feb. 24, 25 and 26.

The speakers will include such nationally prominent figures as Wirt Franklin, oil tariff crusader; George M. White, who rose to the Governor's chair in Ohio through his oil producing interests in Marietta, O.; Fayette B. Dow, general counsel, National Petroleum Association, Washington, D. C.; and R. M. Ward, lubrication sales supervisor, Skelly Oil Co., Eldorado, Kans., whose talks on oil merchandising have been heard at various oil jobber meetings.

In a lighter vein will be the talk on "America As I Find It" by Count Ernesto Russo, Milan, Italy, observer for Premier Mussolini.

The program follows:

"Domestic Oil Production Vs. Imports," by Wirt Franklin, president, Independent Producers Association, Tulsa.

"The Rail and Motor Controversy," by Fayette B. Dow.

"Getting There—A Merchandising Clinic," by O. J. McClure, business analyst and merchandising counsel of Chicago.

"Bigger Profits in Better Merchandising," by R. M. Ward.

Creative Selling in the Oil Industry," by Homer J. Buckley, president, Buckley, Dement & Co., direct mail specialists of Chicago.

"Can the Independent Succeed," and How?" by William Lyden, Lyden Oil Co., Youngstown, O.

Free-for-all discussions on general oil marketing conditions, lease and agency contracts, service to rural trade, and other important topics, will be encouraged.

At the annual banquet the evening of Feb. 25, Howard Justice, tenor on the Sohio radio broadcasts of the Standard Oil Co. of Ohio, will sing; also Helen Thomas Bucher, soprano on the same broadcasts. A style show and dance will complete the banquet. Other entertainers will include the Pennsylvania Railroad male quartet and two funsters from the National Cash Register Co.

A special program has been arranged for ladies attending the convention, including a card party, a theatre party, a personally conducted tour of Franklin Park Zoo, Ohio State University grounds and the Archaelogical Museum, and special luncheons.

Gov. White will say a word of welcome. W. F. Burke, president of the Burke Oil Sales Co., Cincinnati, and president of the association, will deliver the response and keynote address.

Baldwin Again Heads S. Dakota Jobbers

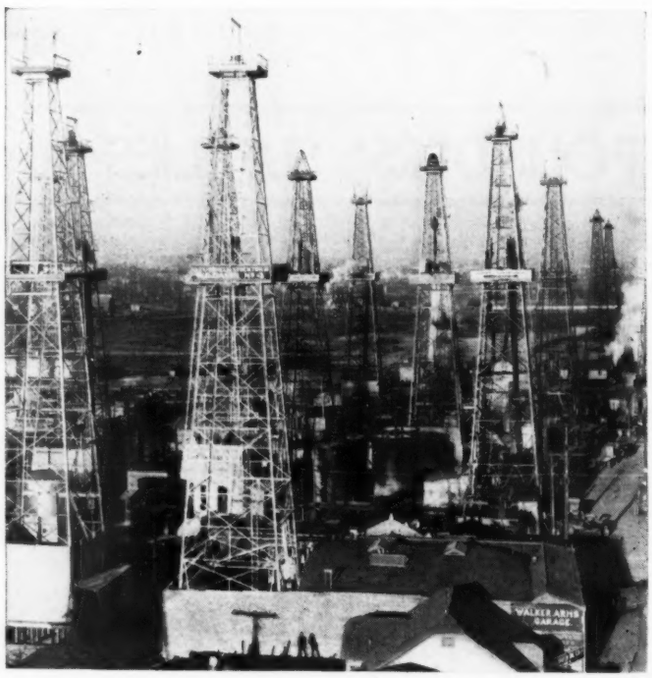
MADISON, S. D., Feb. 5.—A. J. Baldwin, president of the Baldwin Oil Supply, Lake Preston, was re-elected president of the South Dakota Independent Oil Men's Association which met here on Jan. 27 and 28. This is Mr. Baldwin's second term as head of this oil jobber association, according to Fred H. Buehler, president of the Dacotah Oil Co., here, and secretary of the association.

A. C. Simondson, of Timber Lake, was elected vice president, succeeding C. C. Wagner, secretary and treasurer of the Dacotah Oil Co.

Mr. Buehler was re-elected secretary-treasurer.

Elected for directors were O. E. Linblad, of Wolsey, and C. J. Wight, of Vermillion. The meeting was attended by 176 oil men.

TULSA—D. E. Buchanan, president of Hanlon-Buchanan, Inc., has returned to Tulsa from a two weeks' trip through the South. His journey included a visit to the company's natural gasoline processing plant and exporting terminal at New Orleans.



Business as Usual at the Garage

LOS ANGELES, Feb. 6.—One of the most unique oil-field locations ever staked is in the Venice field, of southern California, once a fashionable beach resort. The owners of a garage wished to enter the oil business. An unpaid mortgage on the building held by an eastern capitalist was the only stumbling block. He would not permit the wrecking of the garage until the mortgage was paid. There was not enough room on the lot for a rig without the removal of a portion of the building.

A well known drilling contractor, W. (Bill) G. Davis, solved the problem by removing a portion of the roof and erecting a derrick through the opening in one corner of the garage. The building was large enough to permit the erection of a pipe rack inside, and after considerable figuring, arrangements for engines, pumps and other equipment were made in the limited space. A side door was used for the entrance of trucks loaded with drill pipe and other material. There being no room for boilers, an installation of Doheny Hydril electric equipment was used. Room for a sump was found across the street.

For a time, the garage business was carried on almost as before in the front part of the building while the drilling proceeded.

Mr. Jobber:

Invest a 2c stamp to find out how another jobber increased his Grease Sales

400% in 1930

This man (name and address on application) is just one of dozens of jobbers who multiplied sales and profits in 1930 through the use of the Graigrene Resale Plan.

These jobbers had no advantage over you—except the tremendous sales power of the Graigrene Plan, which enables you to get far bigger orders from your present dealers and open up many new ones.

Your dealers are glad to give you more business. Because, through the Graigrene Resale Plan, you show them how to make big money on transmission and differential lubrication. Most of them never thought it possible to make a cent on this business but you can show them how *one Graigrene transaction will net as much profit as they'd get from fifteen average sales of gas.*

By showing your dealers NEW BIG PROFITS, you'll gain their friendship. You'll sell not only grease but you'll open up a nice big additional volume in gas and lube oils THAT YOU COULD NOT GET IN ANY OTHER WAY.

We won't say anything more about Graigrene lubricant at this time except that it is the finest that can be produced—has a positive cold test of 40° to 60° below zero, and a viscosity of over 300 at 210°.

Invest that 2c stamp now
Send in the coupon for complete facts
about 100% to 500% extra grease profits

Learn what the Graigrene Resale Plan has done for other jobbers situated just as you are. If you want more customers, bigger profits and a steadier, more dependable business the year 'round—remember, it costs only a 2c stamp to find out how.

GRAIGRENE

[PRONOUNCED GREY-GREEN]

RESALE PLAN

Viscosity Oil Company
1101 West 37th Street, Chicago

Send me full details of your Resale Method for increasing jobbers' and dealers' profits on grease from 100% to 500%.

Company..... Name.....

Address..... City.....

Transactions in Oil Shares on New York Stock Exchange

1929 High	1929 Low	1930 High	1930 Low	Listed Shares	Par Value	Company	Div. Rate	Last Paid	Transactions Week Ended Feb. 14 Sales	First	High	Low	Last	Change§
42⅝	17½	42¼	16½	922,075	N.P.	Amerada Corp.	50cQ	Jan. 30, 31	4,300	18½	20½	18½	20½	— 2¾
64⅝	12½	37	5⅛	209,180	N.P.	American Republics Corp.	....	.....	9,100	8	10⅞	8	10⅛	+ 3⅛
47¼	34½	51	30	2,240,000	$25	Associated Oil.	50cQ	Dec. 31, 30	20	30	30	30	30	0
77⅛	30	51⅜	16⅝	2,683,868	25	Atlantic Refining Co.	‡25cQ	Dec. 15, 30	48,200	20¾	23½	20¾	22¼	+ 1⅝
49⅛	20	34	8⅝	2,257,108	25	Barnsdall Corp. A.	25cQ	Feb. 16, 31	31,100	12¼	14⅜	12¼	13⅝	+ 1¼
34½	25	35	21	2,060,966	25	California Petroleum Corp.	....	Jan. 1, 29	.....	....	....	....	....	.....
32⅛	12½	20⅝	8¾	1,444,970	N.P.	Colonial Beacon Oil Co.	....	.....	400	10	10	10	10	0
37⅝	18	30½	7⅝	4,610,258	N.P.	Continental Oil (Delaware).	....	.....	43,900	10¼	12	10¼	10¾	+ ½
94⅝	42¼	71⅛	22⅝	410,857	$100	General Asphalt Co.	$1Q	Dec. 15, 30	26,700	34	40¾	34	38⅜	+ 5⅛
109	26	116⅞	29¼	250,000	100	Houston Oil.	....	.....	33,300	41½	52¾	41½	51⅞	+11⅞
..	..	10¼	6⅝	.....	..	Houston Oil, new.	....	.....	30,300	9⅜	11⅜	9⅜	11⅛	+ 2⅛
53	13½	28⅝	3	699,066	10	Indian Refining.	....	Dec. 15, 20	90,800	4¼	4⅝	4¼	4¼	+ ¼
51¼	11½	27⅝	3½	568,816	10	do certificates.	....	.....	.....	....	....	....	....	.....
38⅝	16½	29½	21¼	3,994,150	N.P.	Lago Oil & Transport.	....	Aug. 2, 27	.....	....	....	....	....	.....
18	7	12	3½	1,187,701	N.P.	Louisiana Oil Refining.	....	.....	3,800	4⅛	4½	4⅛	4⅛	+ ⅛
100¼	80	89½	60	40,000	$100	do pfd.	$1.62½Q	Feb. 14, 31	.....	....	....	....	....	.....
18½	5⅞	10⅝	1¾	330,000	N.P.	Maracaibo Oil Exploration.	....	.....	1,300	2½	3¾	2½	3¾	+ 1⅜
295	176	182	150	459,428	$100	Mexican Petroleum.	$3Q	Jan. 20, 31	150	170	170	170	170	— 1
105	102	100	100	120,000	100	do pfd.	$2Q	Jan. 20, 31	.....	....	....	....	....	.....
69⅜	9¼	37	9¼	1,244,383	N.P.	Mexican Seaboard Oil.	....	Oct. 15, 24	103,600	16⅛	18½	15¾	17¾	+ 1¾
39⅞	22½	33	11	1,899,138	N.P.	Mid-Continent Petroleum.	50cQ	Feb. 16, 31	15,100	14½	16	14½	15½	+ 1⅛
3⅝	¾	2½	¾	908,171	N.P.	Middle States Oil ctfs.	....	.....	.....	....	....	....	....	.....
..	..	32	16	6,708,086	N.P.	Ohio Oil Co.	50cQ	Dec. 15, 30	28,000	16½	18¾	16½	17½	+ 1
69	40¼	64¼	42	1,000,000	$50	Pan American Petrol. & Trans.	....	Oct. 20, 27	100	34	34	34	34	— 1⅞
69¼	40½	67½	32	2,422,221	50	do B.	....	Oct. 20, 27	600	....	35	33¾	35	+ ¾
15¼	3	12¾	1¾	199,370	N.P.	Panhandle Prod. & Refg.	....	.....	2,500	2¾	4¼	2¾	3¾	+ 1⅛
76	47½	80	47½	25,666	$100	do pfd.	....	July 2, 23	.....	....	....	....	....	.....
..	..	27½	6	2,937,900	N.P.	Petroleum Corp. of America.	37½cQ	Dec. 31, 30	33,800	9⅜	10¾	9¼	9⅝	+ ⅜
47	24¼	44⅝	12	2,670,089	N.P.	Phillips Petroleum Co.	50cQ	Jan. 2, 31	100,400	13¼	15⅜	13¼	14½	+ 1¼
3⅜	1	2½	⅛	1,184,917	$25	Pierce Oil Corp.	....	.....	6,800	⅝	1	⅝	⅞	+ ⅛
51½	20	52	7½	150,000	100	do pfd.	....	Feb. 1, 22	1,800	11¼	15	11¼	13½	+ 2½
5⅞	⅛	7⅛	1⅝	2,500,000	N.P.	Pierce Petroleum Corp.	10c	Feb. 16, 31	15,600	2¾	3⅛	2⅝	2⅞	+ ⅛
65⅝	40½	54	11¼	2,435,670	$25	Prairie Oil & Gas Co.	50cQ	Dec. 31, 30	8,900	14½	15⅞	14	15	+ ⅜
65	45	60	16⅝	4,050,000	25	Prairie Pipe Line Co.	‡75cQ	Dec. 31, 30	25,000	21⅜	23½	21⅛	22¼	+ ½
25⅛	4	31	1	749,017	50	Producers & Refiners Corp.	....	Sept. 15, 23	3,600	....	5⅞	4	5⅝	+ 1⅝
46⅝	25½	38	11½	56,907	50	do pfd.	....	May 4, 25	880	15	15⅞	14	15⅝	+ ⅝
30⅝	20	27½	7⅝	3,038,370	25	Pure Oil Co.	....	Sept. 1, 30	22,200	9⅞	11½	9⅞	10⅜	+ ⅝
116	108	114¼	90½	130,000	100	do 8% pfd.	$2Q	Jan. 2, 31	90	98	98½	97¼	98½	+ ½
49⅝	22⅝	28¼	4⅛	2,891,735	25	Richfield Oil (California).	....	Sept. 1, 30	67,200	4¾	5⅛	4⅝	5	+ ⅜
42½	15	25⅝	5	1,235,270	N.P.	Rio Grande Oil Co.	....	July 25, 30	11,300	8¼	8⅞	7⅞	8¼	+ ⅜
64	43⅛	56½	37⅛	951,310	$13.40	Royal Dutch (N. Y. shares).	$1.3404	Jan. 31, 31	6,600	40⅞	42⅝	40¾	41¾	+ 1
55⅛	43⅝	48⅝	26	77,492	£2	Shell Trans. & Trading.	96.6c	Jan. 23, 31	.....	....	....	....	....	.....
31¾	19	25½	5⅞	13,069,076	N.P.	Shell Union Oil Corp.	....	June 30, 30	20,900	9½	10¼	9⅜	9¾	+ ⅜
..	..	106¼	62	400,000	100	do pfd.	$1.37½Q	Jan. 2, 31	1,200	70	75	70	72½	+ 2½
40⅛	15	37	5⅝	869,255	10	Simms Petroleum Co.	....	Sept. 15, 30	6,000	9	10¼	9	9⅝	+ ⅝
45	21	32	9⅝	5,455,665	N.P.	Sinclair Consolidated Oil Corp.	25cQ	Jan. 15, 31	66,800	12⅛	13½	12⅛	12⅞	+ ⅞
111	103	112¼	86	154,685	100	do pfd.	$2Q	Feb. 14, 31	300	102½	102½	102½	102½	0
46⅛	42	42	10⅛	1,097,650	$25	Skelly Oil Co.	50cQ	Dec. 15, 30	9,200	9⅞	11½	9⅞	10½	+ ⅝
..	..	99¾	43	120,000	100	do pfd.	$1.50Q	Feb. 1, 31	2,800	54¼	57¾	53¼	54	0
..	..	106	98	750,000	100	S. O. Export Corp. pfd.	$2.50S.A.	Dec. 31, 30	600	104	104¼	104	104	+ ⅞
81⅞	51½	75	42¼	13,016,434	N.P.	S. O. California.	62½cQ	Dec. 15, 30	36,000	49⅞	51⅜	49⅛	50⅜	+ 1⅜
..	..	49	14⅜	320,000	$25	S. O. Kansas.	50cQ	Dec. 15, 30	5,900	15½	18⅝	15½	17	+ 1¼
83	48	84⅞	43½	25,443,643	25	S. O. New Jersey.	‡25cQ	Dec. 15, 30	128,400	49⅜	52	48¾	50⅛	+ 2⅛
48⅛	31⅝	40⅝	19¾	17,809,530	25	S. O. New York.	40cQ	Dec. 15, 30	54,300	24⅞	26	24⅞	25¼	+ 1
86⅜	55	70	39	1,416,911	N.P.	Sun Oil Co.	‡25cQ	Dec. 15, 30	400	40½	45	40½	45	+ 4⅞
105½	100	107¾	97¾	100,000	$100	do pfd.	$1.50Q	Dec. 15, 30	210	104⅜	104⅜	104	104	+ 1⅛
24	5¼	9⅜	¾	1,026,979	N.P.	Superior Oil Corp.	....	.....	2,600	1⅜	1⅝	1⅜	1⅝	+ ¼
71⅞	50	60½	28¼	9,850,724	$25	The Texas Corp.	75cQ	Jan. 1, 31	40,200	32½	35½	32½	34	+ 1⅜
23⅞	9¼	14½	4	929,947	10	Texas Pacific Coal & Oil.	....	Dec. 31, 29	5,500	5⅛	6	5⅛	5½	+ ⅛
23½	10	17¾	5⅞	5,881,980	N.P.	Tide Water Associated Oil.	30cS.A.	Feb. 16, 31	16,500	7⅝	8⅛	7⅝	8	+ ⅛
90⅞	74⅛	89⅝	56	732,550	$100	do pfd.	$1.50Q	Jan. 2, 31	1,400	62¼	65½	61⅞	63⅛	+ 1⅝
40	14	31	13	2,191,820	N.P.	Tide Water Oil Co.	20cQ	Dec. 31, 30	400	....	13	12½	13	+ 2
97½	85⅛	94⅞	71	199,443	$100	do pfd.	$1.25Q	Feb. 16, 31	200	80	80	80	80	+ 2
..	..	24	12¼	3,339,150	N.P.	Transcontinental Oil.	....	May 1, 30	.....	....	....	....	....	.....
57	42⅛	50	20⅛	2,201,008	$25	Union Oil Co. (California).	50cQ	Feb. 10, 31	11,800	24⅜	26⅝	24¼	25½	+ 1⅜
..	..	38½	23	1,254,048	N.P.	Union Tank Car Co.	40cQ	Dec. 1, 30	1,000	22⅜	24	23⅜	23½	+ ⅜
42⅛	15	27	4⅛	777,603	N.P.	Warner Quinlan Co.	....	July 3, 30	4,700	7	7⅜	7¼	6½	— ¾
38	25	29½	26	490,000	N.P.	White Eagle Oil & Refg.	....	Apr. 20, 30	.....	....	....	....	....	.....
29¾	12⅛	21	6½	428,967	N.P.	Wilcox Oil & Gas Co.	....	May 10, 28	.....	....	....	....	....	.....

*New high †New low ‡Also extra s-Stock §From close of preceding week. Total sales 1,194,750

Pittsburgh Stock Exchange

Transactions Week Ended Feb. 13, 1931

	Sales	High	Low	Last	Change Over Week
Ark. Nat. Gas.	110	6	6	6	— ⅛
do pfd.	395	7	6⅞	7	0
Devonian Oil.	143	5	5	5	0
Lone Star Gas.	4,240	27½	26¼	27¼	+1
do pfd.	100	105	105	105	+ ½
Pgh. Oil & Gas.	237	1½	†1½	1½	— ¼
Plymouth Oil.	625	17	16½	16⅝	+ ⅛
Shamrock O & G.	100	9¼	9	9	— ¼
West. Pub. Service	4,130	12½	12¼	12½	+ ¼

†New low.

Pittsburgh Curb Market

Transactions Week Ended Feb. 13, 1931

	Sales	High	Low	Last	Change
Darby Petroleum.	2,000	4	4	4	....

McKEE CO. EARNINGS IMPROVED

CLEVELAND—Arthur G. McKee Co., engineers and contractors, with headquarters here, are building the largest iron and steel project in the world in Russia for the Soviet government and in addition have wide contracts throughout other parts of Europe, its annual report shows.

Net earnings for 1930 of the McKee company, available for dividends, were $547,747, equivalent to $6.49 a share on the 84,410 shares of class B stock, compared with $446,740, or $5.29 a share, in 1929. Its ratio of current assets to liabilities is 8 to 1, compared with 2.55 to 1 the year before. Robert E. Baker, secretary, points out a gain in capital surplus of $248,168 over 1929, making a total of $574,512.

Pennzoil Creates Four New Sales Divisions

OIL CITY, Pa., Feb. 16.—Realignment of the old central division of the Pennzoil Co. here into four new divisions, headed by four new division managers, has been announced recently by that company, according to Morris R. Locke, of the advertising department.

The new division managers are: C. B. Kinne, Jr., southern division, with headquarters at Atlanta; H. W. Baker, central division, Detroit; J. D. Johnson, Jr., western division, Kansas City; B. M. Fuller, northern division, Chicago. C. H. Thumm remains as manager of the eastern division. His territory has been considerably enlarged.

A. S. Matthews, vice president, believes that with the breaking up of the central division into these new divisions, the closer contact that will result with dealers and distributors will be beneficial to them.

CLEVELAND—A. T. Gosney, for over 26 years with the Great Western Oil Co. and for the past ten 10 years general sales manager, recently resigned his position. He has not yet announced his future business plans.

N.P.N. Service Record

Some of the requests for information, data and advice, which were taken care of in various National Petroleum News offices in the past week are:

New York lawyer and Independent Houston oil operator supplied data on Ranger territory for use in federal income tax case involving more than $4,000,000 against the operator; data identified in testimony before federal board of review, sitting in Houston, before which appeared as witness member of N.P.N. Houston office.

* * *

Pioneer oil operator of Pennsylvania furnished data on conditions in Isthmus of Tehuantepec region of Mexico, with special reference to a ranch there long owned by him.

* * *

Michigan oil jobber furnished name and address of company making sample cases for display oil bottles.

* * *

Ohio marketing equipment manufacturer furnished instructions for grounding gasoline tank cars at bulk plant sidings to prevent static.

* * *

Nova Scotia oil jobber furnished names and addresses of four refiners having plants at East Chicago, Ind., and three others with plants in Illinois.

* * *

Texas oil jobber furnished name and address of company selling coin-in-the-slot gasoline pumps.

* * *

Kansas oil jobber furnished names and addresses of manufacturer of bungs for steel barrels.

* * *

U. S. Labor Department representative called at N.P.N. Chicago office for monthly prices of wax for past five years.

* * *

New York oil company given references to all N.P.N. articles published in 1930 mentioning Ethyl gasoline.

* * *

New York advertising agency given figures on annual gasoline consumption per passenger car.

* * *

Defined for large New York oil company marketing areas of several large oil companies.

* * *

National insurance company told about marketing policies of gasoline pump manufacturers.

* * *

New York exporter furnished names and addresses of firms specializing in textile leather, rayon, clock and watch oils.

* * *

New York engineers and fuel oil buyers given data on possible terminal site which would be adequate for handling fuel oil.

* * *

President of large Chicago tank car corporation called at N.P.N. Chicago office to obtain crude oil prices over the past few years.

THE OIL INDUSTRY EXCHANGE

JUST now there are numbers of men who can use their ability and experience to best advantage only by going into business on a partnership basis. . . . Others are already established in a business that would increase immeasurably with what a new personality and additional capital could bring to it. . . . Get the habit of scanning our "Business Opportunities" column each week. You may see something that will be both interesting and profitable.

Positions Wanted

PETROLEUM CHEMIST: Three years experience, analytical, experimental, research, including gasoline and lubes, desires change West, preferably California. Good command of physical chemistry and engineering fundamentals. Address Box 666.

DRAFTSMAN DESIGNER: 38, single, experienced general oil refinery and piping layout. With present company 9 years. Available March 1st. Address Box 667.

SUPERVISOR OF SERVICE STATIONS construction and maintenance of pumps and equipment desires to connect with reliable concern. Best references. Second consideration salary but not essential. Address Box 660.

REFINERY COST ACCOUNTANT, also past experience unlimited as executive and department head in production, pipe line, treasury and income tax work with several major oil companies. Make him an offer, he will be interested. Address Box 661.

TWELVE YEARS EXPERIENCE IN SALES AND EXECUTIVE capacity. Majority as general sales manager. Well acquainted all branches refinery and station sales of all petroleum products. Will consider Division managership. Sales managership, or possibly part ownership in going oil concern. Answer Box 649.

PURCHASING AGENT, 36, married. 17 years experience in purchasing, stores-keeping and general office work would like permanent connection with good concern, any location, interested in reducing costs. Thorough knowledge of tires and service station equipment. Best references. Address Box 648.

GREASE AND OIL SALES PROMOTER—formerly with Alemite Lubrication Company of Ohio and two years with Paragon Refining Company. Address Box 633.

REFINERY SUPERINTENDENT—Young college graduate. Can refine any crude, successfully operate any modern refinery, organize and train own personal, supervise construction and install efficient maintenance and operating procedure. Considerable sales experience especially lubricants and fuels. Will go anywhere. Address Box 634.

SERVICE STATION MANAGERS. If your marketing cost is too great will you consider an experienced leader, 30 years of age, who can produce quick results? Salary commensurate only with results. Address Box 658.

DISTRICT SALES MANAGER—Industrial oil salesman desires connection. Twelve years selling, four years district manager. Go anywhere at once, with reliable company with future. Excellent references. Single, Salary secondary consideration. Address Box 639.

Situations Open

LUBRICATING OIL SALESMAN who is familiar with jobbing trade in Rocky Mountain states, also Nebraska, Iowa and Northern Illinois. Write giving full information regarding past experience, also salary expected. References required. Address Box 665.

WANTED: Chemist or practical experienced man sodium plumbate lead recovery on sulphur crudes. Oil Refining Company, 227 W. Main, Louisville, Ky.

GENERAL MANAGER

Charge sales and nation-wide distribution of refined petroleum products. Exceptional opportunity for high calibre executive with established record. Overtures confidential.

Interstate Exchange, Hippodrome Bldg., Cleveland, Ohio

Business Opportunities

HALF INTEREST

I want to meet a man who has cash, stock or share to exchange for ½ interest and take active part in a good going independent oil company with a 2 bulk plant and a large distribution of gasoline, fuel oil, furnace oil, kerosene and motor oil. North New England State.

Address Box 664.

Miscellaneous

WHAT IT COSTS

"For Sale," "Wanted to Buy," "Help Wanted," "Business Opportunities."

"Miscellaneous" classifications, set in type this size without border—10 cents a word. Minimum charge, $3.00.

"Position Wanted"—5 cents a word. Minimum charge $1.00.

Advertisements set in special type or with border—$4.00 per column inch.

Copy must reach us not later than Friday preceding date of issue.

All advertisements carried on this page are payable in advance.

Standard Oil Stocks on New York Curb

1929 High	1929 Low	1930 High	1930 Low	Outstanding Shares	Par Value	Companies	Div. Rate	Last Paid	Transactions Week Ended Feb. 14 Sales	First	High	Low	Last	Change§
18⅜	13½	18½	12¼	.....	£1	Anglo-Amer. Oil voting stk. ctfs..	.....	June 5, 29	.....	....	....	....	....	.....
17⅛	11	19	12	.....	£1	do non-voting stk. ctfs.....	.....	June 5, 29	.....	....	....	....	....	.....
2½	¾	1	⅜	500,000	N.P.	Atlantic Lobos Oil.....	.....	.....	.....	....	....	....	....	.....
4⅛	1	1½	⅛	200,000	$50	do pfd.....	.....	.....	.....	....	....	....	....	.....
46½	25	25	11¼	40,000	25	Borne Scrymser Co.....	$1S.A.	Oct. 15, 30	.....	....	....	....	....	.....
74¼	55	69	39⅞	200,000	50	Buckeye Pipe Line Co.....	$1Q	Dec. 15, 30	200	44⅛	46	44⅛	46	+ 2½
210	130	184⅞	100¼	120,000	25	Chesebrough Mfg. Co.....	‡$1Q	Dec. 30, 30	100	117	117	117	117	+ 6¾
11¾	5⅝	7⅝	3	.....	N.P.	Creole Petroleum Co.....	.....	.....	4,400	3¼	3½	3¼	3¼	0
75¾	40	65¾	20¼	30,000	$50	Cumberland Pipe Line Co.....	$1Q	Dec. 15, 30	.....	....	....	....	....	.....
70½	42	54¾	26	50,000	100	Eureka Pipe Line Co.....	$1Q	Feb. 2, 31	.....	....	....	....	....	.....
...	...	6¾	2½	280,000	N.P.	Galena Oil Corp. w.i.....	.....	.....	300	2½	2⅞	2½	2⅞	+ ⅜
...	...	37¼	23⅛	.....	N.P.	General Petroleum Corp. w.i.....	.....	.....	11,200	26	26½	24¼	24¾	— 5¼
128	74⅛	119	57¼	2,974,645	$25	Humble Oil & Refg. Co.....	‡50cQ	Jan. 1, 31	7,800	66¼	72	66¼	68	+ 4¼
41	22	30	15	26,490,741	N.P.	Imperial Oil, Ltd.....	12½cQ	Dec. 1, 30	3,600	17½	17¾	17	17	— ¼
42⅛	26	41	14½	300,000	$10	Indiana Pipe Line Co.....	50cQ	Feb. 14, 31	600	19⅜	21	19⅝	21	+ 1⅞
29⅜	15	24	11⅜	14,247,880	N.P.	International Petroleum Co.....	25c	Dec. 15, 30	13,700	13¾	14½	13¼	14¼	+ ⅝
25⅞	10½	22⅜	11½	509,000	$12½	National Transit Co.....	25cQ	Dec. 15, 30	800	13	13⅞	13	13⅞	+ ⅜
17¾	10	21	10⅛	100,000	10	New York Transit Co.....	40cQ	Jan. 15, 31	.....	....	....	....	....	.....
63	41	54	26¼	40,000	50	Northern Pipe Line Co.....	$2S.A.	Jan. 2, 31	100	30	30	30	30	+ 2
105½	103¾	108	100⅜	600,000	100	Ohio Oil pfd.....	$1.50Q	Dec. 15, 30	300	102	102	102	102	+ ¾
44½	18⅜	32	12	400,000	25	Penn Mex. Fuel Co.....	$1	Dec. 15, 30	300	15	15	15	15	+ 1¼
50	29	33	4⅞	160,000	25	Solar Refining Co.....	.....	Dec. 20, 29	200	7½	7½	7½	7½	+ ½
23½	13	20⅛	6¾	100,000	10	Southern Pipe Line Co.....	$5	Dec. 1, 30	400	13½	13½	13	13	— 1
60¼	35⅛	45⅞	18	1,200,000	25	South Penn Oil Co.....	50cQ	Dec. 31, 30	1,900	21½	22	21	21¾	+ ¾
70	45	64	32	35,000	50	Southwest Pa. Pipe Lines.....	$1Q	Dec. 31, 30	.....	....	....	....	....	.....
63	45	59⅜	30	16,850,587	25	S. O. Indiana.....	62½cQ	Dec. 15, 30	14,500	36¼	36¾	34⅝	34⅞	— 1½
46⅞	29	40½	18⅞	2,577,124	10	S. O. Kentucky.....	‡40cQ	Dec. 31, 30	8,200	22	23⅝	22	23¼	+ 1⅜
50¼	40	48⅞	34	188,159	25	S. O. Nebraska.....	62½cQ	Dec. 20, 30	400	33⅛	34½	33⅛	33⅛	0
129	60	108½	43¼	560,000	25	S. O. Ohio.....	62½cQ	Jan. 2, 31	1,600	54	55½	53¾	54⅞	+ ⅞
...	...	...	...	120,000	100	do 5% pfd.....	$1.25Q	Jan. 15, 31	240	104	104	104	104	0
124½	113½	122	115¼	70,000	100	do 7% pfd.....	$1.75Q	Dec. 1, 30	.....	....	....	....	....	.....
18	5⅛	10	4	34,158	25	Swan Finch Oil Corp.....	.....	Jan. 15, 29	.....	....	....	....	....	.....
133¾	75⅛	97⅞	45⅜	5,139,887	25	Vacuum Oil Co.....	‡$1Q	Dec. 20, 30	6,400	69½	69¾	63½	65	— ½

*New high †New low ‡Also extra §From close of preceding week.

Independent Oils on New York Curb

1929 High	1929 Low	1930 High	1930 Low	Par Value	Companies	Transactions Week Ended Feb. 14 Sales	First	High	Low	Last	Change§
.72	⅛	⅜	1/16	$1	Amer. Contr. Oilfields	.....	....	....	....	....	.....
8⅝	1⅛	4½	½	5	Amer. Maracaibo.....	5,500	¾	1	⅝	1	+ ¼
4¾	1	1⅜	1⅛	10	Argo Oil.....	.....	....	....	....	....	.....
26	3¾	16¾	4⅝	N.P.	Arkansas Nat. Gas...	2,900	5⅞	6⅜	5⅞	6¼	+ ⅜
24¾	6½	16⅝	4¾	N.P.	do Class A.....	18,600	6	6½	5⅞	6⅜	+ ⅜
9	4	8⅛	6¼	10	do, pfd.....	.....	....	....	....	....	.....
70	50	28½	13½	N.P.	British American Oil..	.....	....	....	....	....	.....
4⅞	⅞	2¾	⅝	¼	Carib Syndicate.....	7,700	⅞	1⅞	⅞	1⅞	+ 1
68½	20	44¼	13⅛	N.P.	Cities Service.....	148,100	18⅜	20⅛	18⅜	19½	+ 1⅛
99¼	84	93⅞	52	100	do pfd.....	400	82⅝	83⅜	82⅝	83⅜	+ ⅝
9¼	8	9	7¼	10	do pref. B.....	100	7¼	7¼	7¼	7¼	0
96	81	89¾	80	100	do pref. BB.....	.....	....	....	....	....	.....
1½	¼	⅛	1/16	1	Columbia Syndicate..	5,500	⅛	⅛	⅛	⅛	0
15	3⅞	8¼	1⅜	N.P.	Colon Oil Corp.....	700	2⅛	2¼	2	2¼	+ ⅛
...	...	21	3⅝	N.P.	Columbia Oil & Gas..	2,200	6	6⅜	6	6	0
11⅜	2½	5⅞	2	10	Consolidated Royalty	2,100	2⅜	2⅜	2	2	— ¾
135	42	74¾	1½	N.P.	Cosden Oil Co.....	1,400	3	3	2¾	2¾	— ¼
87	55	70	10¼	100	do pfd.....	.....	....	....	....	....	.....
2½	¼	1	¼	N.P.	Crown Central Pet...	1,000	½	⅝	½	⅝	+ ⅛
11½	4	..	..	N.P.	Crystal Oil.....	.....	....	....	....	....	.....
51⅛	51⅛	..	..	100	do pfd.....	.....	....	....	....	....	.....
26	6½	13½	4¼	N.P.	Darby Petroleum.....	800	4½	5	4½	5	+ 1
...	...	21¾	21½	N.P.	do new.....	.....	....	....	....	....	.....
11	2	11	2	N.P.	Derby Oil & Refg.....	6,500	3¼	6	3¼	4¾	+ 1¾
44	17	60	30	N.P.	do pfd.....	.....	....	....	....	....	.....
...	...	12	12	10	Devonian Oil.....	.....	....	....	....	....	.....
209	115	166⅞	58½	$25	Gulf Oil Corp.....	14,300	68⅞	73¾	68⅞	70	+ 1¼
7½	1⅛	4	2¼	N.P.	Homaokla Oil.....	.....	....	....	....	....	.....
..	..	47½	12¾	N.P.	Indian Territory A...	1,800	16	16⅞	16	16⅜	+ ½
..	..	53½	12⅝	N.P.	do B.....	2,700	16	16⅞	16	16	+ ½
2⅞	⅜	1¾	⅜	10	Intercontinental Pet..	1,500	1/16	½	1/16	½	+ 1/16
3⅝	1¼	3	⅞	N.P.	Kirby Petroleum.....	.....	....	....	....	....	.....
6⅛	1	4¾	½	N.P.	Leonard Oil & Dev...	1,600	¾	¾	¾	¾	0
38⅞	18	29	5	N.P.	Lion Oil Refg.....	100	6	6	6	6	0
67⅞	28	55⅞	19⅜	N.P.	Lone Star Gas.....	3,300	27	27½	27	27	+ ⅞
..	..	31	5½	$25	MacMillan Petrol.....	.....	....	....	....	....	.....
2⅞	¼	½	⅛	1	Magdalena Synd.....	8,200	¼	⅜	¼	⅜	+ 1/16
38½	14	16	3	N.P.	Margay Oil.....	.....	....	....	....	....	.....
6⅜	2¼	7½	1⅜	N.P.	Mexico Ohio Oil.....	.....	....	....	....	....	.....
..	..	11⅞	2¼	N.P.	Middle States A v.t.c.	1,900	3¼	3⅞	3¼	3¼	— 5/16
..	..	6	¾	N.P.	do Class B v.t.c.	1,600	1¼	1¼	1⅛	1⅛	0
42	8	36¼	5	5	Missouri-Kansas P.L.	5,300	7⅛	7⅜	7	7	— ⅛
1½	¼	¾	⅜	1	Mountain & Gulf Oil..	200	¼	¼	¼	¼	— 1/16
22⅞	7	12⅜	4½	10	Mountain Producers..	800	5⅜	5½	5⅜	5½	+ ⅛
43⅞	24	41⅜	19⅞	N.P.	Nat. Fuel Gas.....	1,500	24½	26½	24⅜	25	+ ½
5	2¼	3½	1⅛	$5	New Bradford Oil....	800	1⅜	1⅜	1¼	1¼	— ⅛
4¾	3⅛	3⅛	2⅛	10	New England Fuel....	.....	....	....	....	....	.....
24½	11⅛	16⅞	4	25	N. Y. Pet. Royalty...	.....	....	....	....	....	.....
18½	6⅛	11¼	2⅛	N.P.	North Central Texas	200	2⅝	3¼	2⅝	3¼	+ ¾
19¼	8⅛	11⅝	3⅞	N.P.	Oilstocks Ltd. A.....	300	4	4½	4	4½	+ ½
18¼	8½	11½	4⅜	N.P.	do B.....	.....	....	....	....	....	.....
26⅜	12⅛	19½	6½	N.P.	Pacific Western Oil...	3,100	10	10⅜	10	10⅜	+ ¾
3½	½	2½	¼	N.P.	Pandem Oil.....	19,700	1/16	½	1/16	½	+ 1/16
10½	2¼	4⅜	1	N.P.	Pantepec Oil.....	700	1⅜	1⅜	1½	1½	0
25½	13⅛	15	13⅛	$25	Paragon Refg. B. ctfs.	.....	....	....	....	....	.....
28	17	29	19⅛	N.P.	Petroleum Corp.....	.....	....	....	....	....	.....
..	..	5⅞	½	....	do warrants.....	600	1	1	⅝	⅝	0
37	22	27½	16¼	N.P.	Plymouth Oil.....	700	16⅜	16⅞	16⅜	16⅞	+ ⅜
16	9	10½	3	$5	Red Bank Oil.....	.....	....	....	....	....	.....
8½	1⅛	5⅜	1	N.P.	Reiter-Foster Oil.....	800	1¼	1¼	1⅛	1⅛	0
25¼	19	23½	7	25	Richfield Oil pfd.....	100	8	8	8	8	+ ⅛
29	13	25	2¼	N.P.	Root Refining pr. pfd.	.....	....	....	....	....	.....
11	3	8⅝	2	N.P.	Ryan Consolidated...	400	3	3	2¾	2⅞	+ ⅛
5⅞	1⅞	2½	½	10	Salt Creek Consol.....	400	1¼	1⅜	1¼	1⅜	+ ¼
25⅞	9	15¼	5¼	10	Salt Creek Producers.	1,600	6⅞	7	6⅜	7	+ ¼
33⅜	10	8	1¾	25	Shreveport El Dorado	.....	....	....	....	....	.....
..	..	39⅛	39	25	Signal Oil & Gas A...	.....	....	....	....	....	.....
24	9	17	6	N.P.	Southland Royalty...	2,600	6⅝	6⅝	6½	6½	— ⅛
12	4	10	2	5	Sunray Oil.....	6,200	3¼	3⅞	3¼	3¾	0
23	7⅛	19½	8	N.P.	Texon Oil & Land....	600	12	12⅞	12	12⅞	+ 1⅛
81⅛	8⅞	16	8	10	Venezuela Mexico....	.....	....	....	....	....	.....
6½	1⅛	4½	¾	5	Venezuela Petroleum.	4,700	1	1¼	1	1	0
9⅛	2	5	2	1	Woodley Petroleum...	.....	....	....	....	....	.....
5⅜	¼	2½	⅜	N.P.	Y Oil & Gas.....	.....	....	....	....	....	.....

*New High †New Low §From close of preceding week.

New York Bonds

Week Ending Feb. 13

	High	Low	Last	Ch'ge
Atlantic Refg. deb. 5s....	103	101½	102¼	— ¾
Cal. Pet. 5s.....	96½	96½	96½	+ ¼
do 5½s.....	100½	100½	100½	+ ¼
General Pet. 5s.....	102¾	102½	102½	— ¼
Humble Oil & Refg. 5s..	101⅞	101½	101⅞	— ⅛
do 5½s.....	102⅞	102⅜	102⅜	0
Pan Amer. P. & T. 6s...	102	101⅝	102	+ ¼
do 6s.....	63⅛	62	63	—2
Phillips Pet. 5¼s.....	89½	87	88½	+ ½
Pure Oil 5½s.....	92¾	91½	92¾	+ ¾
do 5½s.....	92	91	92	+2½
Richfield Oil of Calif. 6s..	65½	64	65	+1
Shell Union Oil 5s.....	86	83⅜	85	+1½
do 5s with war.....	88	86⅛	88	+1¼
Sinclair Con. Oil 7s.....	100¼	99⅜	99⅜	— ¼
do 6½.....	97¼	95½	95¾	— ¼
Sinclair Con. Crude 5½s.	102	101½	101⅞	+ ⅛
Sinclair Pipeline.....	100½	100	100½	+ ½
Skelly Oil 5½s.....	77¼	77	77	— ¼
S. O. N. J. 5s.....	103⅞	103¼	103⅜	+ ¼
S. O. N. Y. 4½s.....	100	99¾	100	+1
Union Oil of Calif. 6A ..	106	105¼	106	0
do 5s C.....	100	99⅞	100	+ ⅛
do 5s war.....	96½	96	96½	+ ½
Warner-Quinlan 6s.....	95¼	94½	95¼	+1¼
White eagle Oil 5½s war.	103	102⅝	102¾	+ ¼

New York Curb Bonds

Week Ending Feb. 13

	High	Low	Last	Ch'ge
Beacon Oil 6s '36.....	97¾	97½	97¾	0
Cities Service 5s '66.....	76	74½	75	+ ¼
do 5s '50.....	81⅛	79½	79⅞	+ ⅝
do G. 5½s '42.....	82	80¼	80¼	0
do G. P. 6s '43.....	88	86¾	86¾	0
Cont. Oil 5½s '37.....	94	93½	93½	0
Empire O. & R. 5½s '42..	79	77¾	78¼	0
Gulf Oil 5s '37.....	103	101¾	101¾	— ¼
do 5s '47.....	103½	103¾	103½	+ ½
Independent Oil 6s '39...	99	99	99	0
Sun Oil 5½s '39.....	101½	101¼	101½	+ ½

Cleveland Stock Market

Feb. 13, 1931	Bid	Asked
Canfield Oil.....	...	125
do pfd.....	102½	..
Fred G. Clark.....	1¼	2½
National Refining.....	22	22½
do pfd.....	132	..
Paragon Refining B.....	...	2
do B 2nd indorsed.....	1	2
do vtc.....	...	..
do vtc. 2nd indorsed.....	⅝	..